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INSIDE DOPEby **GEORGE F. TAUBENECK****Story of the Week****Ice Cream: A Sick Industry
Helping a Sick Business
Slightly Encouraging Trends
Ice Cream Every Sunday
Summation
Those Cycles—Damn 'Em****Story of the Week**Culled from the Book Exchange
Section of a "classified advertising"
page:**"WILL SWAP** one copy of Bennet's
'How to Be Attractive' and two vol.
set of 'Encyclopedia of Sexual Know-
ledge' for good mystery stories. What
have you?"We recommend our own "The
Mysteries of Blair House."**Ice Cream: A Sick Industry**The above "story"—with its im-
plicit disillusionment and desire for
a change—is applicable to that seg-
ment of our industry which makes
and sells ice cream cabinets and soda
fountains. It needs a different set of
books, too.In the early days of mechanical
refrigeration, soda fountains and ice
cream cabinets were among the in-
dustry's most-wanted products. They
spearheaded the development of the
entire refrigeration business. The
picture is different today. With the
possible exception of water coolers,
the backlog of automatic demand for
ice cream cabinets and soda foun-
tains is probably the weakest regis-
tered by the entire family of refrig-
erated appliances at this particular
moment. In other words, it takes
strong selling to move them.Major reason: Ice cream consump-
tion has been falling off steadily in
recent years.When consumers buy less ice
cream, it's obvious that our indus-
try will sell fewer refrigerated stor-
age boxes. Our job, then, is to help
ice cream manufacturers revitalize
consumers' desire for ice cream.That will take quite a bit of doing,
because the ice cream distribution
business is in the throes of a revolu-
tion.Prior to World War II, some 90%
of our nation's ice cream was sold
through drugstores. And most of it
was consumed by youngsters, on the
premises of these drugstores. The
druggists figured that catering to
"kids" was a good idea. Young ice-
cream-buyers brought their parents
into the store, and the youngsters
themselves were conditioned to shop
for vitamins and pills and sundries
in that drugstore when they grew up.During the war this progressive
druggists' attitude changed. Ice
cream was hard to get. So was res-
taurant service. Soda fountains
turned from ice cream to sandwiches.
They catered to harried adults. And
that was the time when druggists
decided that "kids" were a nuisance.
Ice cream cones and sodas were
priced out of reach of youngsters.
And the latter were herded out as
fast as they barged in—because they
were noisy, messed up the magazine
rack while thumbing through comic
books, and just on "general princi-
ples." Apparently it hasn't occurred
to drugstore proprietors that they
should throw out the comic books in-
stead of the kids.)End result is that ice cream con-
sumption and distribution is revolu-
tionizing. From an on-the-premises
deal, it's converting into an off-the-
premises phenomenon. Instead of
down to the corner drugstore for
their ice cream, "kids" are being
served at home with the dessert and
"snack" they love best.

(Concluded on Page 12, Column 1)

**Mfr. Action Seen Needed to Help
Distributor-Dealer Net Profit**By **George M. Hanning** and **John O. Sweet****CINCINNATI**—William A. Blees,
general sales manager of Crosley
Div., Avco Mfg. Corp., drew pro-
longed applause from a large gather-
ing of appliance distributors from
all over the country when he told
them:"Factories must do something
about discounts in this business so
as to assure a reasonable and satis-
factory profit being made by dis-
tributors and dealers."Blees, who is also vice president
of Avco, was speaking at the 41st
annual convention of the National
Electrical Wholesalers Association
held in the Netherlands Plaza hotel
here last week. He was one of three
featured speakers who addressed
NEWA's appliance division.Other speakers were M. F. Cotes,
executive vice president, Motor
Wheel Corp., and general manager of
the Duo-Therm division, and Ross D.
Siragusa, president and chairman of
the board of Admiral Corp.Cotes declared that it is vitally
important that distributor profit
margins on appliance lines "be main-
tained at a point where the distribu-
tor can show a net profit after taxes
of between 5 and 6% in a well-man-
aged operation."Siragusa said the big question of
1949 is "not whether business gen-
erally is going to be good by any rea-
sonable standard, but rather what
industries and what companies are
going to make the most of the favor-
able situation.""When you stack the dollars avail-
able up against the kinds and quan-
tities of goods American industry
can produce, you can foresee, without
the aid of either an economist or a
crystal ball, the makings of a compe-
titive battle fully worthy of the
Atomic Age," he asserted.

(Concluded on Back Page, Column 1)

**7-Cu. Ft. Shelvador
Will Sell at \$199****CINCINNATI**—A new model, 7-cu.
ft. Shelvador refrigerator, to sell at
a retail price of \$199.95, was recently
introduced to dealers by Crosley Div.,
Avco Mfg. Corp.W. A. Blees, Avco vice president
and Crosley general sales manager,
(Concluded on Page 4, Column 4)**Sell Yourself First**(A guest editorial by **W. F. Switzer**)**T**HERE are two ways to reach the top of an oak tree. One method is
to climb the tree. The other is by sitting on an acorn and waiting for
it to grow. This same bit of homespun philosophy holds true for selling
room air conditioners. In these competitive days the selling man who
chooses to "sit on the acorn" will find that his wait will be a long and
unprofitable one. On the other hand, the aggressive dealer who sharpens
up his specialty salesmanship spurs and "digs in" with a will, can
expect to increase his earnings commensurate with his effort.If I were a dealer, interested in cornering a large share of the room
air conditioning business in my locality, I would first "condition" myself
to the innumerable benefits of air conditioning. Essentially air condition-
ing is simply a mechanical process for conditioning the air we live in
and the air we breathe. By providing the stimulation of fresh, cool,
filtered mountain breezes, it aids man in overcoming the effects of hot,
sultry summer weather. By reducing excessive moisture in the air, it
enables him to live, work, and rest comfortably and healthfully—despite
the most oppressive heat and humidity.One thought leading to another, I might sit back and relax, compar-
ing my cool, pleasant office with that of the average businessman
mopping his face in a hot, sticky, noisy, and dusty downtown office. I
might even step over to my "conditioner" and open up the ventilation a
bit farther before I begin to picture helpless infants and children in
hot humid rooms, elderly people, sick people, hay fever sufferers—ad
infinitum—the list of prospects is virtually endless.Day dreams—I think not. If I were an alert dealer thinking in this
vein, I would know that I had formulated my first move in improving
room air conditioning sales. The various markets for my selling campaign
were falling into line.At this point, the aggressive dealer might sit down, pencil in hand
and rough out an outline of a general prospect list. It might include:
(1) Homes and apartments; (2) professional offices; (3) private offices;
(4) small enclosed departments such as fitting rooms in dress shops,
studios, barber shops, etc.; (5) hospitals; and (6) a miscellaneous
group including convalescent homes, confectionery shops, clinics, and
laboratories.At this stage of planning, a more systematic and detailed check of
prospective users is necessary. As a starter consider the classified section
of the local telephone directory, in building a "professional" or "office"
prospect list. Arranged in alphabetical order can be found advertising
men, architects, attorneys, brokers, dentists, doctors, optometrists, realty
agents, etc. The majority of this class of prospects are financially able to
purchase air conditioning equipment—yet many are enduring intolerable
working conditions during the hot weather months simply because they
are of the opinion that air conditioning is expensive. Moreover, many
are not aware of the small investment required with self-contained
package equipment.Many successful dealers compile their prospect list according to
business buildings or areas; others by special business "groups." There

(Continued on Page 16)

**Industry Output Threatened as
Strike Closes Philco Plant****G-E, Westinghouse Await
'4th Round' UEW Demands****NEW YORK CITY**—The United
Electrical Workers, C.I.O., has an-
nounced that within a month it will
demand a "fourth round" of wage
increases and security benefits
amounting to \$500 yearly per union
employee. General Electric and West-
inghouse are included in the com-
panies upon whom demands will be
made.Individual locals of the union will
determine how the \$500 increase shall
be broken down."In some companies," declared
James J. Matles, national director of
organization for the U.E.W., "the
emphasis may be on a reduction in
hours, say to 30 from 40 a week. In
another company the principal de-

(Concluded on Page 4, Column 3)

**Philco Union Asks 15-Cent
Raise, Pension, Insurance****PHILADELPHIA**—Federal and
state labor conciliators were to en-
ter negotiations Friday, May 6, in
an effort to end the strike which
had closed the plants of Philco Corp.
here May 2.The United Electrical Workers
Union (C.I.O.), whose contract ex-
pired April 30, is demanding a 15
cents an hour raise and other bene-
fits. Philco officials are apparently
willing to grant some of the bene-
fits, but declare that because of the
return of competitive conditions it
is impossible to grant the wage in-
crease.The strikers threw up picket lines
around Philco's refrigerator and
radio-television plants, and office
workers, except for certain mainten-
ance, payroll, and personnel depart-
ment employees and telephone opera-
tors, were unable to pass the picket
lines.In addition to the 15 cents an hour
increase, the U. E. W. is asking two
additional paid holidays, hospitaliza-
tion benefits, and an insurance-pen-
sion plan which the union estimates
would cost 4½% of the company
payroll.The strike is the first serious labor
dispute Philco has had since 1938.**Improved Kerosene
Refrigerator Set****NEW YORK CITY**—Production of
an improved kerosene refrigerator
with a gross volume of 8.4 cu. ft. is
now under way, it was announced re-
cently by Bolivar Refrigerator Co.,
Inc., here.The refrigerator is said to be the
only intermittent absorption type
household unit. It was produced in
substantial quantities prior to the

(Concluded on Page 4, Column 1)

**Restaurant Men Hold
Exhibit May 24-27****CHICAGO**—The 30th anniversary
exposition of the National Restau-
rant Association, to be held May
24-27 at Convention Hall in Atlantic
City, will have the largest educa-
tional display of food products and
food service equipment ever pre-
sented to the restaurant market, it
was announced by J. Willard Mar-
riott, president.More than 320 companies and or-
ganizations, including several in the
refrigeration industry, have reserved

(Concluded on Page 29, Column 4)

IN THIS ISSUE**Motor relays and protectors** are
sensitive mechanisms whose installa-
tion and replacement should be ef-
fected with care. J. A. Bagnall, of
Spencer Thermostat, explains various
aspects of their structure and per-
formance in an article on pages
22-25.**Theater air conditioning** is a field
that's opening up for the manufac-
turers of package units. An outline
of estimating and installation pro-
cedures is covered on pages 18-19.**"Mother's Day"** comes only once
a year, but on page 13 is an account
of how eight dealers in Missouri
pooled their advertising to go after
a special holiday prospect list.**New Carrier Machine
Cools with Steam****SYRACUSE, N. Y.**—Development
of a new refrigerating machine that
employs steam for air conditioning
purposes—and thereby provides a
balance in steam loads for summer
cooling and winter heating—was an-
nounced last week by Carrier Corp.Representing more than eight
years of research and development,
the new unit is an absorption ma-
chine which uses plain water as a
refrigerant and a simple salt as an
absorbent, Carrier officials reported.Cloud Wampler, Carrier's presi-
(Concluded on Page 29, Column 1)**Mail Order House Prices:****Refrigerators, Home
Freezers Drop at Ward****CHICAGO**—The biggest number of
price cuts since before the War, in-
cluding several on appliances, are
included in the midsummer sale cata-
log which Montgomery Ward mailed
out the first of May.Refrigerators at "\$25 to \$40 less
than comparable models" is the
statement made at the beginning of

(Concluded on Page 4, Column 2)

**'Coldspot' 7-Cu. Ft.
Model Decreased \$15****NEW YORK CITY**—Sears, Roe-
buck retail outlets in the New York
City area last week reduced the price
of a 7-cu. ft. "Coldspot" refrigera-
tor model from \$199.95 to \$184.95.Local Sears officials denied that
the New York area price cut had
any relation to the introduction by
Crosley of a 7-cu. ft. refrigerator to
retail for \$199.95. They pointed out
that Sears stores in Chicago have
been selling the same model for
\$189.95 for some time.**Wilson Adds 2 Chest-Type
Home Freezers To Line****SMYRNA, Del.**—Two new chest-
type home freezers have been added
to the line of refrigeration equipment
being produced by Wilson Refrigera-
tion, Inc. here.Model F-12 is listed by the manu-
facturer as having a storage capacity
of 500 lbs. of frozen foods, and
model F-8 is rated at 320 lbs.

(Concluded on Page 29, Column 3)

Vacationers' Demand for Used Refrigerators Prompts Dealer Trade-In Plan

ROCHESTER, N. Y.—Kennedy-Clark, Inc., 22 South Ave., recently promoted refrigerator business with a newspaper advertisement asserting that the firm wanted used refrigerators to take care of requests from summer cottage dwellers.

"We have 16 unfilled requests for refrigerators for cottage use," said the advertisement. The store offered a "most liberal" trade-in on an old refrigerator toward purchase of a new unit.

The firm offered to pick up old refrigerators and deliver new ones, without charge, for any customer living within 50 miles of Rochester.

2 Join Chicago Mfrs. Agent

CHICAGO—Two new associates have been added to the firm of Miles, Nagel & King, manufacturers' agents here, the company has announced.

Speaker Urges Manufacturers To Protect Distributor on New or Untested Products

CLEVELAND—Five ways that manufacturers can cut distribution costs and improve distributor relations were outlined here recently by Ray C. Neal, president of the National Supply & Machinery Distributors' Association.

They are:

1. Use a simplified discount system to cut down on bookkeeping.
2. Better labeling.
3. Pre-payment of freight wherever possible.
4. Aid in removing slow-moving items from inventories.
5. Use better research methods in arriving at marketing policy decisions.

In addition, Neal recommended strongly "that factories train their salesmen for a somewhat longer period of time."

Many distributors, he said, would

rather be without a factory representative for a year while one was being trained than to have one put in their territory without sufficient background.

He also pointed out that it is not beneficial to either the distributor or the manufacturer for the latter to load up the distributor with an untested new product.

"A new line of stock," he said, "often imposes a headache on distributors. The distributor would be willing to do more if he was not too often left holding the bag by manufacturers who generally have an original stock recommendation."

"Some adjustment should be made possible by a definite procedure for adjustment of slow-moving items which are put in stock from time to time. A yearly adjustment should be allowed, and if the factory representative is on his toes, this adjustment should not become burdensome to the manufacturer."

New Contractors Association Chartered In Springfield, Ill.

SPRINGFIELD, Ill.—The Secretary of State's office has issued a charter for a non-profit corporation to The Air Conditioning and Refrigeration Contractors Association, First National Bank bldg., here.

Incorporators of the trade association are John C. Turner, Ivan J. Falconer, and Arthur L. Hammond.

Remington Licensed To Use 9 Patents Owned by Frigidaire, Hoover Co.

CORTLAND, N. Y.—Under the terms of a license agreement recently signed between Remington Corp., here, and R. R. Fitzsimmons, agent for The Hoover Co. and Frigidaire Div. of General Motors Corp., Remington may use inventions owned by Hoover and Frigidaire in the manufacture of its room air conditioning units. The inventions in question apply to both console and window-type room air conditioners, the announcement pointed out.

"The significance of this license agreement, which covers a total of nine patents, is that it now brings the number of patented inventions which may be incorporated in the design of Remington air conditioners to a total of 63, giving the company's engineers the widest possible latitude in their developmental work. In effect, they fortify Remington's own engineering efforts with those of some of the best design engineers in the air conditioning industry," said Herbert Livingston Laube, president of the Remington concern.

"Several of the inventions in question are patented not only in the United States but also in foreign countries, including Argentina, Brazil, Canada, and Mexico. The importance of this is obvious, in view of Remington's traditional emphasis on the world export market," he added.

Shelvador Refrigerator Sales Help Set Record Volume for Crosley Div.

CINCINNATI—The Crosley Div., Avco Mfg. Corp., reports that its sales this year are breaking all records for the company's 28-year history.

Crosley's radio and television sales for the first four months of its 1949 fiscal year—December through March—were up 42% over 1948, according to John W. Craig, Avco vice president and Crosley general manager.

Shelvador refrigerator sales have exceeded the 1948 figures by 25%, Craig said.

During March, Crosley sales soared to 56% higher than March of 1948, increasing from \$5,005,509 to \$7,834,943.

W. A. Blees, Crosley general sales manager, said that March, during which Crosley refrigerator sales topped March of 1948 by 49%, was regarded as a "warm-up" month for the refrigerator selling season which regularly begins in April and continues generally well into the summer.

He also pointed out that due to the current high rate of sales, Crosley distributors and dealers are carrying less than a 30-day inventory.

'Cook It Yourself,' Range Dealer Tells Patrons

BUFFALO—The William Henger Co. here, stimulated spring business in ranges with a special promotion in its appliance department in which it invited customers to do their own cooking on the ranges and then take the samples home with them.

The store provided special bags with which to take the cooked food out. Batters were all ready to put in the stove when customers came in. A home service representative of the Iroquois Gas Corp. of Buffalo was on hand to help customers and to explain proper methods of cooking and suggest recipes.

Store Offers To Refund Difference on Kelvinator Line if Prices Drop Soon

IRONWOOD, Mich.—Its own "price protection plan" on Kelvinator appliances is being offered by the Johnson Music Store here as its own contribution towards breaking down the "wait and see if the price changes" buyer resistance.

In newspaper advertisements the store has told customers in effect that if they buy now, and prices drop before July 1, the buyer will get a refund.

Stated the text of one advertisement:

"Purchase your new Kelvinator refrigerator or range now. . . . Johnson's protect you against any price reduction before July 1."

"You may purchase the new Kelvinator refrigerator or range you've been wanting right now with assurance that you will not be the loser if prices should drop before July 1. Frankly, there doesn't seem to be any prospect of another price reduction on Kelvinators, but if there is, Johnson's will pass the reduction on to you so that you pay no more by buying now! In event of a price reduction before July 1, you will be given a cash refund automatically on the entire amount of this reduction."

First 500 Get Measuring Cups

SYRACUSE, N. Y.—Wilsons Jewelers stimulated traffic in its appliance department by offering measuring cups to the first 500 customers coming to see a new refrigerator line.

GOLD PLATES

For the Refrigeration Industry

For quick freezing, chilling and holding, short period cooling, "holdover," etc.

Made by men who KNOW refrigeration.

DISTRIBUTOR INQUIRIES INVITED

DEAN

PRODUCTS, INC.

1042 Dean St. Brooklyn 16, N. Y.



WATER FILTERS

remove CHLORINE TASTE

remove RUST AND DIRT

SELL A FILTRINE FILTER WITH EVERY COOLER

A Few Choice Areas Open for Factory Representatives

FILTRINE MANUFACTURING CO., BROOKLYN 5, NEW YORK
"Water Coolers and Filters for 40 Years"



another *new* Revco chill chest



The new REVCO 8 Cubic Foot Chill Chest is a masterpiece of low temperature refrigeration designing! Without sacrificing freezing efficiency or low cost operation it is the perfect answer to home-owners' demand for "more storage capacity, yet less floor space". Compare the new REVCO 8 Cu. Ft. Chill Chest . . . compare any Revco product . . . and you will see why Revco is your profit line. Easier to sell . . . less service . . . REVCO gives your customers more features they want.

WRITE OR WIRE FOR COMPLETE INFORMATION

REVCO HEAVY DUTY
12.3 CU. FT.
CHILL CHEST

Revco INC.

DEERFIELD, MICHIGAN

Low Temperature Refrigeration Specialists

NATIONAL DISPLAY SPACE — 1454 MERCHANDISE MART, CHICAGO, ILLINOIS



ICE CREAM, DAIRY
PRODUCTS AND
FROZEN FOOD
MERCHANDISERS

AUTOMATIC
ICE CREAM
DISPENSERS



GENERAL BREAKS THE PRICE

..... To Get More of Your Business

MM & FUL VISION CASE

at \$239.⁰⁰

net, F.O.B. N. Y.

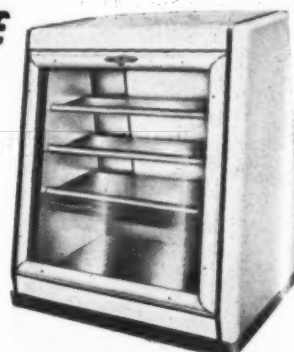
4' Ful Vision Case, Triple Thermopane Glass. Coils Hooked Up, Valve Installed.

1/4 H.P. air-cooled unit of standard manufacture \$54.00

GENERAL REFRIGERATORS CORPORATION

678 Broadway, New York 12

Gr. 3-1222



Everybody's Pointing to Hotpoint's "Pushbutton-Cooking"



Hotpoint's Latest Triumph Sets New Sales And Production Records As Thousands Cheer Sensational Pushbutton Controls And Wonderful "Talking Colors"

NEVER before a range with such features! Never before a selling theme so powerful! Hotpoint's revolutionary Automatic Electric Range with sensational "Pushbutton Cooking" is writing the greatest success story in range history.

• Dealers have 36 outstanding features as sales clinchers—in addition to Hotpoint's Pushbutton Controls, "Talking Colors" and world-famous Calrod® Units. Dealers get aggressive, year-round advertising support in leading magazines and newspapers—plus solid merchandising aids that spell P-R-O-F-I-T. No wonder they call Hotpoint the franchise with a future! Hotpoint Inc. (A General Electric Affiliate), 5600 W. Taylor St., Chicago.



Hotpoint makes a range to fit every customer's budget—six models in all—equipped with either Pushbutton Controls or Rotary Switches.



Everybody's Pointing To

Hotpoint

RANGES • REFRIGERATORS • WATER HEATERS • FREEZERS • DISHWASHERS • DISPOSALS • CLOTHES WASHERS • DRYERS • IRONERS • CABINETS AND SINKS

Kerosene Model--

(Concluded from Page 1, Column 5)

war, but has now been "vastly improved in design, capacity, and efficiency," according to W. T. Kearney, general sales manager.

Actual manufacture of the box is being done under contract for the company by Wilson Refrigeration, Inc., a division of Wilson Cabinet Co., Smyrna, Del., Kearney said. He pointed out that his company has concentrated upon the export market thus far.

"Firm orders now on hand will take up most, if not all, of our production during the early months," he stated. "Because of that situation, we have gone slowly in completing our arrangements for sale within the United States, but negotiations have been in progress for some time and we expect to soon determine our policy."

The cabinet consists of a one-piece, wrap-around steel shell, welded and sealed against moisture-vapor penetration. All steel used is said to be electrolytically coated with pure zinc for rust resistance and better paint adhesion.

Two coats of white baked-on Dulux enamel comprise the finish. The cabinet base is recessed and finished in black enamel.

Outside dimensions of the refrigerator are 64 in. high by 30 1/4 in. wide by 29 1/2 in. deep. Inside dimensions are 31 3/4 in. high by 24 in. wide by 19 in. deep.

Insulation consists of 3 in. of Fiberglas.

The interior, formed of 20-gauge, zinc-coated steel of welded construction, is finished first with a baked

du Pont white zinc primer. This is followed by a baked coat of du Pont "abrasion-resistant" enamel.

Gross shelf area is given as 16.4 sq. ft., including a fruit and vegetable conditioner of .9 cu. ft. All shelves are removable.

The extruded aluminum evaporator contains four "Quick-Release" ice cube trays holding 84 cubes, and a frozen food storage compartment of .41-cu. ft. capacity holding 16 1-lb. packages.

The full-width conditioner drawer at the bottom of the refrigerator has a glass shelf cover and slides on roller bearings. Also provided is a glass meat-keeper tray.

It is claimed that the refrigerator is entirely automatic in operation, that it operates efficiently in climates of 100° or more, that defrosting of the outside of the freezing compartment is not required, and that the brine tank, burner, and control assembly are easily removed.

Ward Prices Fall--

(Concluded from Page 1, Column 4)

the refrigerator section of the catalog. However, the "Supreme" 9-cu. ft. model has been reduced only \$5 to \$279.95; the 7 1/2-cu. ft. "Supreme" has been cut \$10 to \$229.95; and the standard 7 1/2-cu. ft. model was reduced \$15 to \$179.95 from the spring edition listing. An 8.8-cu. ft. refrigerator is priced at \$209.95, but the comparable cost previously was not indicated.

A 12.5-cu. ft. home freezer was reduced \$45, from \$344.95 to \$299.95. Another home freezer model that sold for \$229.95 was cut to \$199.95.

Washers show reductions of from 10 to 15%, and radios 10 to 30%.

UEW '4th Round'--

(Concluded from Page 1, Column 4)

mand may be for an increase in the hourly wage rate. Conditions in each company will determine the shape the demands take."

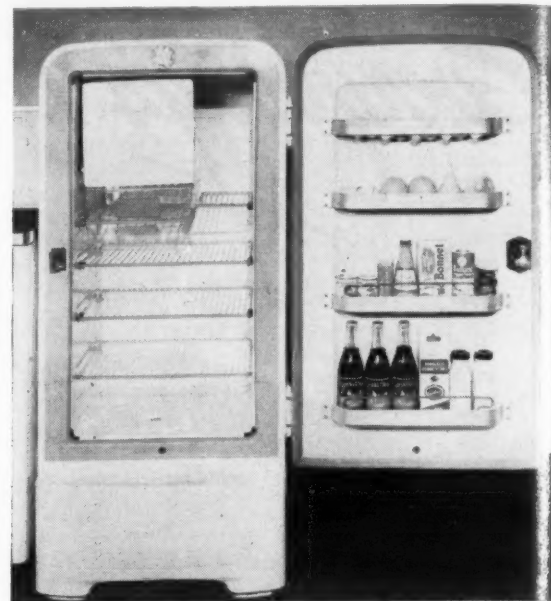
The electrical divisions of General Motors Corp. (including Frigidaire) will not be subject to the opening demands, as the 40,000 GM electrical workers are covered by the same cost-of-living formula that applies to the company's automotive employees. Matles wouldn't say whether his union would attempt to win acceptance by General Motors of any pattern it might obtain from General Electric and Westinghouse.

Specific demands to be presented to each major company will be formulated at conferences of local union representatives early in May. Negotiations with the companies are expected to begin sometime late in May.

How the manufacturers will react is not certain at this time, although General Electric has previously indicated its belief that higher labor costs this year would force higher prices and thus reduce employment opportunities.

The union's demands, which Matles claimed could be met easily, would be a serious financial blow to most companies if they granted them. In the case of G-E, for example, it would wipe out most of last year's profit of \$123,800,000. Applied to all its 192,000 employees, the U.E.'s demands would add about \$96 million to the payroll. In the case of Westinghouse it would more than wipe out the profit which the company made last year.

Crosley Line's 'Price Leader Model'



Crosley's new 7-cu. ft. Shelvador model, which will sell for \$199.95, has been introduced to stimulate sales. It is known as Model AA-7.

New Shelvador Price--

(Concluded from Page 1, Column 3)

announced that Crosley was providing this model, known as the AA-7, to attract more buyers to dealers' stores and to increase dealer sales.

"Dealers all over the country," he said, "have been asking for such a 'leader model' and Crosley is giving them a full family size, 7-cu. ft. refrigerator to sell below \$200."

He pointed out that Crosley refrigerator sales for March of this year were 49% ahead of the corresponding month of last year and that Crosley's field inventories represented less than a 30-day supply on the basis of the present rate of sales.

Inwood Smith, manager of refrigeration and freezers for Crosley, stated that the AA-7 model was initially introduced early this year.

Dealer and Distributor Share In New Deepfreeze Price Protection Plan

NORTH CHICAGO, Ill.—Details on the new Deepfreeze home freezer price protection plan, reported in the news columns of the May 2 issue of AIR CONDITIONING & REFRIGERATION NEWS, are as follows:

"Effective April 25, Deepfreeze Div. of Motor Products Corp. will extend price protection to cover both distributor and dealer inventories of current model home freezers. This new policy supersedes the price protection policy formerly covering distributor inventories only, and is effective with sales beginning immediately.

"The conditions applying to price protection on distributor's inventories are as follows: price protection is extended on current models of Deepfreeze home freezers on distributor purchases for a period of 90 days from date of purchase. Current models presently are: standard model B6 and deluxe model C6, both 6-cu. ft. capacity; standard model B10 and deluxe model C10, both 10-cu. ft. capacity; and deluxe model C18, 17 1/2-cu. ft. capacity.

"At the time of such price changes, distributors will be required to furnish such detailed reports of current inventories as may be required by the Deepfreeze Division. These reports are to be furnished promptly and within the period specified at the time of the change.

"The conditions applying to the price protection extended on dealer inventories are as follows: price protection will be extended for a period of 90 days from the date of purchase of current model Deepfreeze home freezers by dealers.

"Deepfreeze reserves the right to modify, withdraw, or alter this policy at any time. No modification of this policy, however, will apply to sales made under this plan prior to notification of its change."

MDD?

Coming!

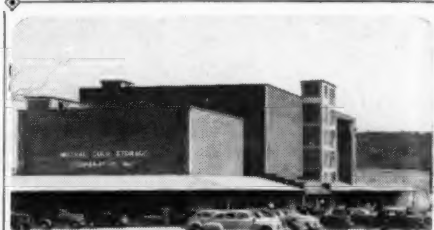
Watch for Announcement!

Monsanto Announces 22% Cut In Santocel Price

BOSTON—A 22% reduction in the price of Santocel, a space-saving silica aerogel used extensively for refrigeration and industrial insulation, was announced May 4 by Monsanto Chemical Co.

Substantially increased production has enabled the company to reduce the price of Santocel from 64 cents to 50 cents a pound.

At the same time, Heffernan disclosed that Firestone Tire and Rubber Co. is now offering to the consumer trade the first upright, Santocel-insulated home freezer.



Another COMMUNITY REFRIGERATION CENTER Succeeds with Frick Refrigeration

The Mutual Cold Storage Cooperative, located between Broadway and Timberville, Va., serves

the prosperous Shenandoah Valley in many ways: makes 50 tons of ice daily, stores 2,000 tons, ices trucks and railway cars, operates several ice routes; quick-freezes 50,000 pounds of poultry per day; stores 375,000 bushels of apples and 1 1/2 million pounds of frozen foods; processes fresh foods, rents 1,285 lockers; and provides cooling services to three large cooperatives—for fruit, poultry and meats—nearby.

Modern Office Building



2,000-Ton Ice Storage



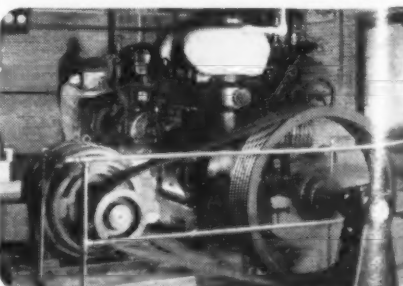
Freezer Storage at -10°



1,285 Food Lockers

DEPENDABLE REFRIGERATION SINCE 1912
Frick Co.
WYANDHORO, PENNA. U.S.A.

Two of the Ten Frick Machines at Broadway



It's the New Tecumseh Hermetic Motor Compressor

Take a good look at this new Tecumseh single cylinder, 1/10th horsepower Hermetic. Check its over-all dimensions, its amazing new compactness of design. Consider its internal spring mountings that assure smooth, quiet, vibrationless operation. Then add positive forced feed lubrication, ample provisions for oil cooling, plus all the other outstanding engineering features that characterize the millions of Tecumseh units already in service. These are reasons enough, we believe you'll agree, why this latest Tecumseh Hermetic has been acclaimed a major contribution to the refrigeration industry.

Adaptable to apartment, midget and regular domestic refrigerators, water coolers, small beverage coolers and vendors, biological cabinets, and many other applications where limited space is a controlling factor.

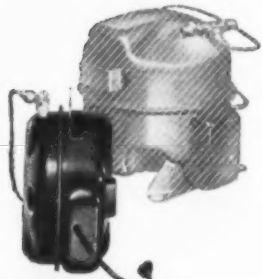
TECUMSEH PRODUCTS COMPANY
Tecumseh, Michigan

WORLD'S LARGEST INDEPENDENT PRODUCER OF COMPRESSORS AND CONDENSING UNITS FOR THE



Chieftain

REFRIGERATION INDUSTRY.



COMPACT! Just 9 3/4" in diameter by 5 17/32" thick! Compare its size to other Hermetics and you'll see why this new Tecumseh unit is a "natural" for your "limited space" applications.



Mr. John E. Wilson, Jr., President of Wilson Refrigeration, Inc., calls the new Wilson Five Year Warranty Plan a great step forward and an added help to all Wilson Dealers for stimulating Sales.

NEW! THE WILSON FIVE YEAR WARRANTY!

Protects

**Your Customers Against
Food Spoilage Losses!**

Protects

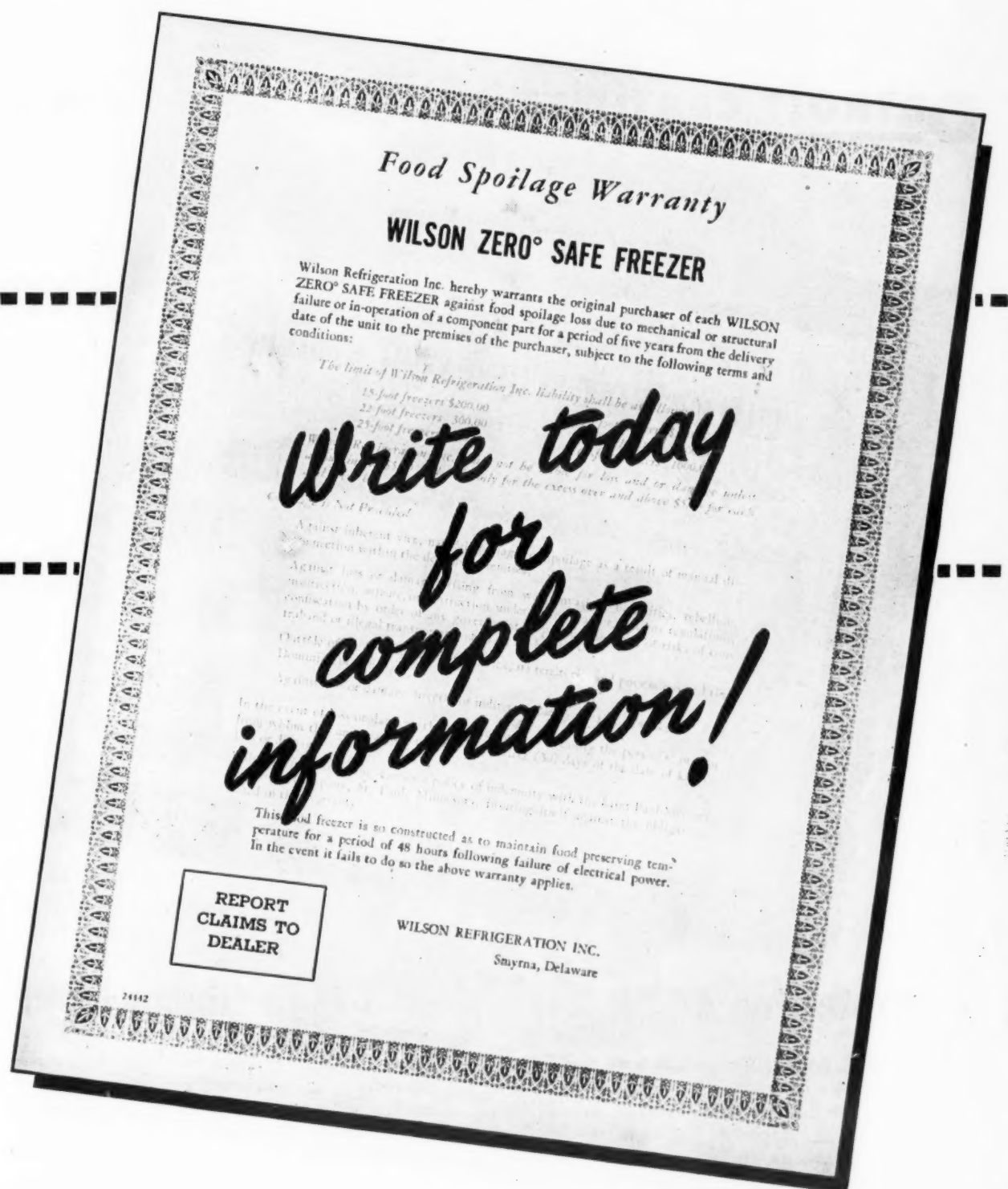
YOU Against Profit Losses!

Here's a new Wilson sales aid! Now, the original purchaser of a Wilson Freezer receives a five year warranty against food losses due to power interruption or unit breakdown.

Now you are protected too! The five year warranty protects you against breakdown, which includes free replacement of unit plus installation costs and shipping charges. Now your profits are assured.

Your Wilson salesman or distributor has complete information on this plan. Translate the information into "sure fire" sales points that will help you sell more Wilson Freezers.

For further information, write direct.



WILSON REFRIGERATION, INC.

DIVISION OF WILSON CABINET CO., INC., SMYRNA, DELAWARE

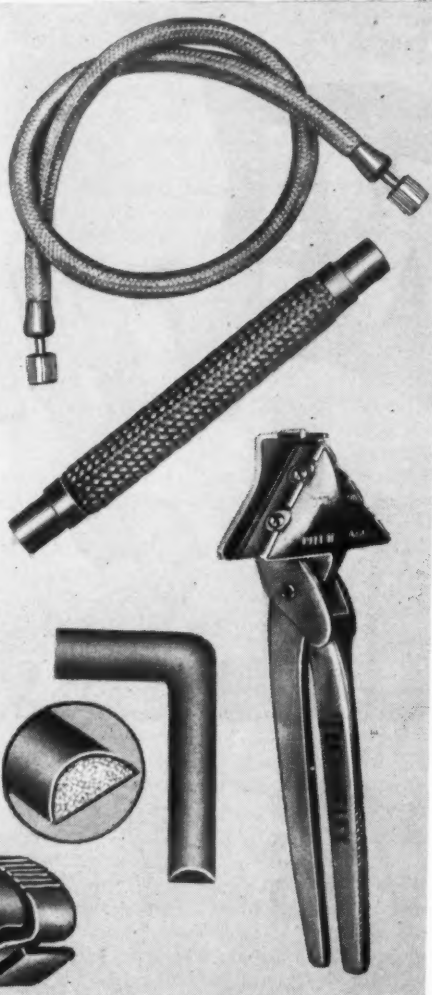
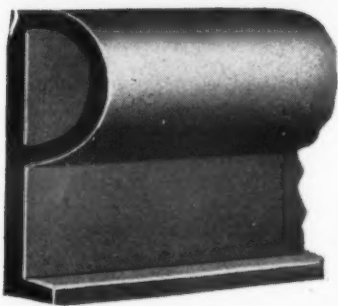
FARM MILK COOLERS • FREEZERS • COMMERCIAL REFRIGERATION

TECHNIFLEX Refrigeration Specialties

are especially designed to provide IMPROVED refrigeration accessories. Using only quality materials and workmanship, you will find they develop new standards of satisfaction from your customers.

Ask your regular dealer for these items or send for bulletins.

Illustrations at right—top to bottom:
Improved Charging Line
Vibration Eliminator
New Door Gasket Notcher
Techniflex Gaskets



TECHNIFLEX CORP.

49 JERSEY AVENUE, PORT JERVIS, N.Y.

Action-Packed Window, Profit Plan For Salesmen Boom Business for Dealer

DENVER—A display window in which there is always something going on and a compensation plan that gives appliance sales one third of the profit on the merchandise they sell have been developed into a winning combination for the Arapahoe Hardware Co. on E. Colfax Ave. here.

Arnold Schlesinger, head of the firm, has spent \$32,000 in making his new store one of the most eye-appealing and efficient appliance sales organizations in Colorado.

Located out of the downtown district, one of the first things he did was to make sure that his appliance windows were constantly interesting and "active" enough to catch attention of passersby.

With 25 ft. of glass giving plenty of visibility, Schlesinger built a "stage" platform running back 12 ft. from the glass, and elevated 3 ft. off the floor. This was covered with linoleum tiling, with three elevated platforms at the extreme rear on which are shown actively operating automatic laundry equipment, refrigerators, and ranges. At the front, smaller platforms just inside the glass show hardware, small appliances, and other small items.

Whenever an appliance prospect wants a demonstration, she is taken upon the platform by a salesman who wears a white coat with the store name lettered in red on the back. Here the demonstration is carried on under powerful fluorescent light.

The entire scene is readily visible through the window, particularly because of the salesman's white coats and white appliances, and in this way the window becomes a "stage" with plenty of activity to attract attention from the outside.

Schlesinger credits many major appliance sales to the fact that a passerby was "stopped" by a busy window activity.

The store is open until 8:30 each evening, and there is "always something going on in the window to attract curiosity." Every appliance is operating, real food in the refrigerators, clothes in the washing machines, and pans steaming away on the ranges.

Schlesinger has appointed and trained a four man sales crew for outside calls exclusively, each given a quarter of Denver as his territory. Each man has a long list of prospects obtained at the formal opening of the store.

3,000 PROSPECTS TO START

At that time, 3,000 homeowners streamed through, attracted by 10 appliance prizes, and each filled out slips listing appliances currently in use, their ages, and those new appliances which interested them most.

Splitting up the 3,000 among 4 men, with "side prospects" referred by the customers themselves has obligated any need for doorbell ringing, Schlesinger said.

Instead of paying appliance specialty men the usual 5% or more commission on refrigerator and other sales, Schlesinger hit upon a "profit-sharing" plan which gets much more enthusiasm from his crew.

Under its setup, each salesman gets one third of the profit on any appliance sale, profits figured after haulage expense, trade-in allowance, etc., have been considered.

The sales manager received a 5% override on all appliance sales for scheduling calls, setting up demonstrations, and arranging service work.

The one third profit plan has worked like a charm, according to Schlesinger.

"We feel it gives the salesman much more leeway in making each sale," the dealer said. "For example, the salesman can work out combination deals containing several appliances, adjusting the price to fit the situation, and keeping the profit returns equalized."

SALESMAN QUOTES OWN TRADE-IN

"He can quote his own trade-in allowances, having been trained to estimate reconditioning and reselling cost accurately, and insure the best profit return while still getting the new appliance sale."

"If the sale demands an exceptionally large trade-in allowance, the salesman is his own judge, and his own income depends on how well he figures costs. In this way, each man is made to feel as though he were in business for himself and takes greater pride and interest in making the best deals for all concerned."

Trade-ins accepted by Arapahoe Hardware are sold through a large showroom in the rear of the store, so that no used refrigerators or ranges appear alongside the two lines of new equipment in the front of the store.

All reconditioning, as well as delivery and installation, is handled by Zeller Refrigerator Co., an appliance service organization, on a contract basis. Schlesinger has a long list of people on hand who want trade-in refrigerators, and turns over the stock swiftly, seldom accumulating more than three or four simultaneously.

Results from the outset have been fine, according to Schlesinger.

OHI Plans Convention, Exposition on May 16-20

BOSTON—The Oil Heat Institute of America will stage its 26th annual convention and the National Oil Heat Exposition here from May 16 to 20, the Institute has announced.

The five-day convention will be held in the Statler hotel and the exposition in the Mechanics Hall. More than 125 exhibitors are expected to display their wares at the exposition.

The exposition opens at 7 p.m. Monday, May 16, and closes that evening at 10:30 p.m. On succeeding days it opens at 1 p.m. and closes at 10:30 p.m., except on the final day when it will close at 5 p.m.

The convention program is divided into Institute day, Ladies day, Burning Oils Industry day, Dealer day, and Architects and Engineering day.

Dan A. Packard, household sales manager of Kelvinator Div., Nash-Kelvinator Corp., is scheduled to speak on Dealer day (Thursday) on the subject, "The Art of Specialty Selling."

Everyone in the oil heating and allied industries is invited to attend the convention and exposition, according to the Institute.

Admiral Earnings, Sales For Quarter Set New High

CHICAGO—In nearly tripling last year's net earnings and doubling its net sales in the first fiscal quarter ending March 31, 1949, Admiral Corp. and its subsidiaries set a new high record for first quarter earnings and sales, according to Ross D. Siragusa, president.

Net sales for the first quarter of this year totaled \$23,513,097 compared with \$12,004,168 for the corresponding quarter last year.

Net earnings for the quarter were \$1,536,217 compared with \$530,410 for the same period in 1948.

This year's first quarter earnings were equivalent to \$1.54 per share on the 1,000,000 shares of common stock now outstanding as compared with earnings equivalent to 53 cents per share for 1948's first quarter on the basis of the same number of shares.

Siragusa declared, "This is the second highest quarterly sales and earnings record in Admiral's history, exceeded only by the last quarter of 1948 when sales were \$24,249,757 and profits \$1,745,039."

Stephenson Leaves Association Post, Joins Tri-State Electric

MINNEAPOLIS—Charles H. Stephenson, manager of the Minneapolis and St. Paul Appliance Dealers Association, has announced that he left here May 1 to accept an executive position with the Tri-State Electric Co. located at Sioux Falls, S. D.

Stephenson has been in association work since early 1938 when he was employed by the Minnesota Electrical Council and North Central Electrical Industries to coordinate business building programs and promotions.

Big Crowd Sees Distributor's New Showrooms In Harrisburg

PHILADELPHIA—Peirce-Phelps, Philadelphia-Harrisburg distributor, climaxed a highly successful spring merchandise show with the official opening of its new Harrisburg showrooms at 25 South 10th St.

Completely modernized and redesigned, the new showrooms drew a record crowd of dealers to the two-day merchandise show on April 12-13. Numerous manufacturer representatives, the mayor of Harrisburg, and other dignitaries attended the grand opening.

26,000 SQUARE FEET
OF STORE AND
WAREHOUSE SPACE

The Supply House That
Service Built



Everything you need in REFRIGERATION,
AIR CONDITIONING, HEATING PARTS and SUPPLIES

Save time and energy . . . order from our new catalog. Efficient same-day service, from men who know your business. Keep your stocks complete from our stocks. Wholesale only.

SERVICE PARTS CO.

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MELROSE PARK, ILL.

demand

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THE DETROIT LUBRICATOR COMPANY
DETROIT

Certifies as to the reliability of any device of its manufacture and bearing its nameplate or monogram. The company certifies and guarantees such device, under normal use, to give reliable and trouble-free service when properly installed. If such device is found defective, it will be replaced under our standard guarantee or published replacement plans.

For more than 70 years the name DETROIT Lubricator Company has stood for quality beyond question. The certification of every DETROIT Control is your assurance of the continuation of this policy of building your business and our business on the firm foundation of complete customer satisfaction.



Look for this Certificate
—only Authorized
DETROIT Wholesalers
sell certified Controls.

Protecting YOUR Reputation—Maintaining OURS

DETROIT, famous for quality for over seventy years, now offers you the most aggressive and complete backing in its history. In addition to DETROIT's great nation-wide distributing organizations and an exceptionally well qualified factory service group, every control in the DETROIT line is Certified. This means products you can sell with confidence because

they are built to give your customers the maximum in convenience, reliability and economy—greater satisfaction for users, added profit for you. The next time you order refrigeration valves and controls, specify DETROIT. For, only with DETROIT do you get the important plus value of this Certified Quality—protecting your reputation, maintaining ours.

DETROIT

LUBRICATOR COMPANY

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Division of AMERICAN RADIATOR & Standard Sanitary CORPORATION

CANADIAN REPRESENTATIVES: RAILWAY & ENGINEERING SPECIALTIES, LTD. — MONTREAL, TORONTO, WINNIPEG

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ENGINE SAFETY CONTROLS • FLOAT VALVES AND OIL
BURNER EQUIPMENT • DETROIT EXPANSION VALVES
AND REFRIGERATION ACCESSORIES • STATIONARY
AND LOCOMOTIVE LUBRICATORS

Serving home and industry. AMERICAN-STANDARD • AMERICAN BLOWER • CHURCH SEATS • DETROIT LUBRICATOR • KEWANEE BOILER • ROSS HEATER • TONAWANDA IRON

Putting On Demonstrations for Women's Groups Is Sure-Fire Way To Get Prospects

FAIRFIELD, Ala.—Putting on a good, live entertaining show for housewives is one of the most sure-fire methods of creating major appliance sales,—so long as the dealer can depend on a steady stream of interested women, according to M. E. Smith, manager of Smith Appliance Co., Westinghouse dealer here.

"Such demonstrations pay off, however, only when there are enough women on hand that the law of averages will turn up a few prospects," Smith indicated.

Therefore, instead of spending money for newspaper advertising, direct mail, or cold canvassing, we have developed a different method of insuring a worth-while audience at every demonstration."

Under his plan, Smith pays 25 cents "per head" for every woman brought to a store appliance demonstration by a group of local clubs which include parent-teacher associations, women's sewing circles, sororities, etc.

Smith hit upon the plan early in 1948, when, despairing of ever attracting more than two or three people at a time into the store, he mentioned to a club woman secretary friend that he would pay a premium into the club treasury if she could bring the entire membership around for a refrigerator demonstration.

Smith was highly surprised a few days later when the group showed up, 30 members strong, and remained in the store for more than an hour, while he put a variety of appliances through their paces.

Since that time "group demonstrations" to women who are members of clubs, or friends of members, have become a routine policy with the store—and so effective a promotional idea that more than 300 refrigerators have been sold to women "introduced" in this way.

The plan works simply through contacts which Smith makes by telephone with a long list of women's clubs in the area. Telephoning the secretary of each, he introduces himself, and frankly points out that he is in need of prospects, many of whom may be found among the club's membership.

Range Mfr. Offers Dealers Inventory Control Book

CONNEERSVILLE, Ind.—A new system for inventory control of its products at the retail level is being made available to dealers of the American Central Div., Avco Mfg. Corp., it was announced by C. Fred Hastings, general sales manager.

Hastings described his company's "Inventory Control Book" as a "means whereby the retailer may keep his inventory in balance, thus avoiding overstocking." Also, it allows for sufficient planning to replenish an inadequate inventory with time allowance for shipments, he said.

The Control Book is being made available to the company's "Blue Streak" dealers, those prepared to do a concentrated merchandising job in line with factory-distributor-dealer cooperation on advertising and promotion, and consists of four major sections.

Complete checks can be maintained on sinks, base and wall cabinets, and accessories and filler strips. Entries in the book allow for date of distributor's salesman calls; listing of merchandise on order; listing of merchandise in stock; listing of merchandise that has moved since previous entry; and the balance.

A minimum and maximum inventory is listed upon consultation between distributor and dealer, thus allowing for readjustment of inventory when it approaches one extreme or the other. Other entries note cost value and retail estimate of American inventory.

Sierra Drops Retailing Operation, Concentrates On Appliance Distribution

RENO, Nev.—In an unusual move, Sierra Appliance Co. here, has switched over from appliance retailing to distributing and has remodeled its store in order to service the contractor and building trade.

The announcement was made by B. H. Robinson, secretary-treasurer of the firm.

To acquaint the Reno retail market with the change, the company ran a full-page newspaper advertisement which announced:

"We feel that we should not be in competition with our Norge dealers, so we are withdrawing from the retail business and will operate exclusively as wholesalers."

The firm will handle a complete line of Norge products, and service 50 dealers throughout Nevada and northern California. Along with the change, I. R. Williams, head of the firm, sold a retail store in Las Vegas, Nev.

Nashville Dealer Group Boosts Members In 'Electrical Appliance Days' Promotion

NASHVILLE, Tenn.—A two-week long promotion designed to encourage floor traffic and promote sales in member stores is being staged from May 2 through 14 by the Nashville Electrical Dealers Association.

Called "Electrical Appliance Days" the promotion is offering appliance prizes to the public at two drawings on May 6 and May 16. Tickets are available only in member dealers' stores. Each includes a dealer's stub that will contain prospect information for follow up, the association said.

Other purposes of the promotion are: to encourage interest in sale of major electrical appliances, to publicize Neda members as electrical appliance dealers, and to point out to the public the advantages of better living with electricity.

The association is advertising "Electrical Appliance Days" and includes the names and addresses of members in the advertisements. The

advertisements invite the public to come into member stores and see the many new models of electrical appliances on display and to get a free ticket on the drawings.

The association said that all prizes are being donated by distributors and manufacturers and are displayed on the sales floor of the Nashville Electric Service.

Each participating dealer, it added, displays duplicate models of all prizes handled by his individual firm with appropriate explanatory signs.

Dealers have agreed not to offer individual prizes during the event, according to Marvin Carden, general chairman of the promotion.

Southern Sales Agent Moves

ATLANTA—Joe E. Parker, manufacturers' sales representative in the southeastern states, has announced a change of address to 699 Spring St. N. W. here. Telephone number is Emerson 2066.

Why not Profit from Experiences of others?



"Dependable service is the basis for our business. That's why we use dependable Frigidaire Service Parts," says W. H. Stolle, of The Stolle Company, 123 East Jones Street, Sherman, Texas.



"For less job time and satisfactory, long-lasting service, my choice is Frigidaire Service Parts," says George A. Kaufman, of Kaufman-Ischinger, 131 East Mount Carmel Avenue, Glenside, Pa.



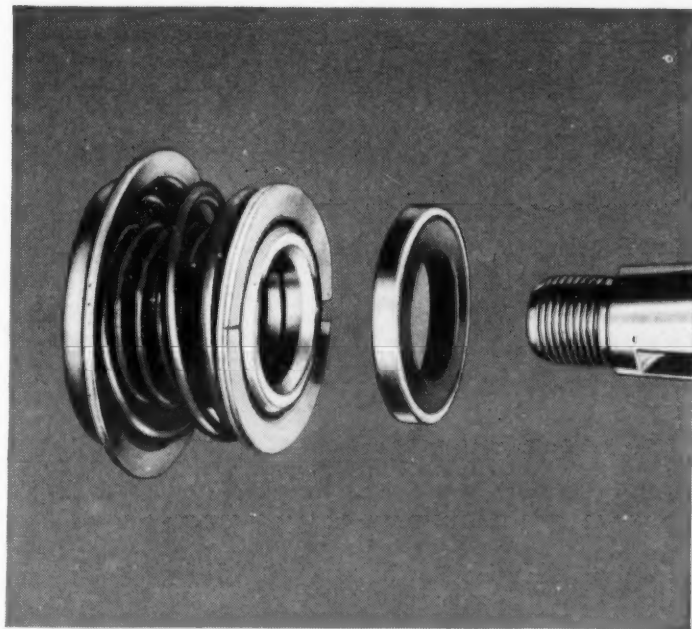
"Better sales of Frigidaire Commercial Products have resulted from my use of genuine Frigidaire Service Parts," says Ray Mischeau, of Ray's Refrigeration, Rt. 2-99 N., Mt. Vernon, Washington.

Frigidaire Service Parts mean Good Business For You!

Frigidaire Replacement Seals Give Long, Trouble-Free Service and Efficient Operation

Precision-built of finest materials, Frigidaire Replacement Seals repay your customers in long, trouble-free service—repay you in valuable customer goodwill. That's because they're expertly designed for best compressor performance. Highly polished sealing surfaces that are oil flooded at all times assure positive seal—reduce friction and noise to a minimum. Bellows type construction assures even pressure control at all times.

It's good to know, too, that the design of these seals makes it unnecessary to lap or reface the shaft when you use Frigidaire Seals for replacement. That's one reason why you'll find that they make work easier—cut down on job time. It's one of many reasons why Frigidaire Replacement Seals, like other Frigidaire Parts, mean good business for you.



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The exclusive new "Cross-Flow" principle that guarantees NO clogging and NO Pressure Drop—now more universally applicable—available with DUCAL DRIERITE, for hot liquid line installations, or with SILCA GEL, for low-side, suction line or other cold locations.
Instructive informative Bulletin available on request.

REMCO INCORPORATED
ZELLENFELD, PA.

Newspaper Ads, Direct Mail, Phone Calls Sell Dealer's Custom-Built Kitchen Service



William S. Merman, vice president of the Kitchen & Bath Shop, shows a customer how the cabinets and appliances will fit her own kitchen.

WASHINGTON, D. C.—Electric kitchen planning units set up in small scale models and drawn according to customer's individual specifications by the store's draftsmen are helping the Kitchen & Bath Shop here to steadily increase trade.

The store's merchandising philosophy is that if a prospective buyer can actually see how her appliance units are arranged the way she wishes, sales resistance is diminished.

"We have found that the custom-built sales approach is a much more dramatic presentation than the package unit idea," said William S. Merman, vice president.

"Under this method, we put the customer's general objective on the drawing board. The customer gets a plan and elevation blueprint or she can see the model set up. If she prefers, we give her a photograph showing how her kitchen will look when completed.

"We have gone to great pains to explain our procedure in all our promotion and on the first point of contact by our salesmen.

"The customer has her choice of brands and models. If she specifies G-E, Youngstown, or any of the other popular lines, we present the standardized setups of these companies. But if she wants a layout to conform to her furniture, room contour or any other reason, we offer our personal counsel and services to keep her satisfied."

Under this arrangement, the sales-

Working on Appliance Layouts



Jack W. Golden, builder's representative, works on a kitchen design while Phillip Fox, draftsman, goes over a blueprint.

man, when calling at the home, obtains such preliminary information as appliances desired, price range, and quality, and the measurement of the kitchen or bath. Then he returns to the store and files this data with the planner, who is an experienced draftsman.

This man studies the figures and breaks them down to scale on a plot map. From these specifications he sets up his model with small replicas of the appliances arranged to the customer's choice.

The prospective buyer is invited to come to the store to look over the model and compare it with other models similar to it, or to study photographs of these models. If the prospect is unable to reach the store, then a picture of the model is taken to her.

newspaper advertising and direct mail. They have found that space used in the Sunday newspapers is the best puller of results.

This is largely due to their copy prepared under the guidance of the Epstein Advertising Agency, retail account specialist, which is always characterized by a sketch of a complete kitchen unit with a housewife working in it.

These advertisements feature one particular type of equipment at a good reduction in price, backed up by showing the complete kitchen unit. The idea back of this, of course, is to attract attention by presenting a price leader. Once the focus is directed to the copy, the reader will go on to learn more about the appliances offered.

Return coupons are always placed in these advertisements, although most of the inquiries are through telephone calls, which is more satisfactory from the store's viewpoint since it gives an opportunity to explain the model unit plan verbally and to answer questions which a customer may ask.

Bolstering the newspaper drive is a direct mail campaign which consists of the usual printed message with return postcards. The returns specify a particular time and date for a salesman to call. Addresses are obtained from the criss-cross telephone directory, city directory, and from builders' lists.

A phone solicitation drive is also carried on extensively to bring the store's attention to home-owners through the warmth and persuasion of the human voice. Like many other establishments in Washington, Kitchen & Bath Shop has engaged a professional telephone organization whose callers go straight down the line with the purpose of arranging an appointment.

Professional Telephone Group Covers Directory

But the aggressive members of the sales staff don't rely on this professional aid to get them leads. They sit on the phone themselves in the evenings after supper. Being in a more advantageous position to explain the benefits of the appliances offered and the model service plan, they make their own appointments which they can follow up immediately.

The store's operations and use of models is not confined to individual customers, but the same approach is used for builders, apartment house owners, and other large scale buyers. Procedure is changed in only one respect, that of changing the trade name to the Merman Co. (the building supply department).

Through the use of models, the firm has been able to sell one to 500 units at a time to these heavy buyers.

The message of personalized kitchen planning is emphasized by the store whenever possible. It is carried on its stationery, letterheads, statements, cards, or any other printed matter which is constantly brought to public attention.

Models Provide Miniature Picture of Appliance Layout

This miniature setup gives an immediate eye picture of a kitchen or bath set to individual dimensions and installed with a range, refrigerator, home freezer, and sink and wall cabinets. It shows where the windows are, the entrance, and other practical bits of information.

Few of these models are alike. In most cases they are put up, inspected and judged, and then torn down.

This feature of change is particularly applicable to a transient center like the nation's Capital, with its heavy influx and outflow of population. Most of the home dwellers prefer to have the old fixtures displaced by those of their own choice.

Customer reaction to this type of retail salesmanship has been highly favorable thus far, Merman reports. He finds that most persons have their own ideas as to styles and appearance of wall and base cabinets and other fixtures and that they express their appreciation over their ability to see the entire unit at a glance, rather than having to rely on word description.

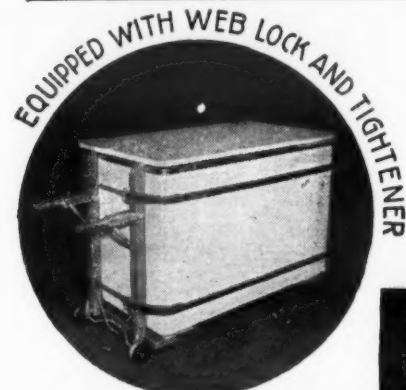
System Reduces Refunds

Furthermore, it leaves them satisfied from the very beginning. There is no need for the fuss or bother of making exchanges or refunds.

The Kitchen & Bath Shop depends upon heavy interior and exterior displays as well as a three-pronged solicitation drive to bring the message of their model unit service to the public. The window display contains a setup of a model kitchen with all of the appliances in working order. It has resulted in building up a great deal of store traffic.

On the main sales floor, the store has continued this visual demonstration procedure by setting up samples of its five exclusive lines, both in wood and metal, in actual size and equipment. A further air of realism is created by two stalls fixed up on the floor with shower and bathtub and walls lined up in Congo-wall tile.

To create desire and build up interest in their products, Kitchen & Bath Shop depends largely upon



Are You Looking for An Easy Way
to Handle Stoves, Refrigerators
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Solve Your Problem with the New
ROLL-OR-KARI Dual Trucks

Patented Step-On-Lift • Folding Handles
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MANUFACTURERS
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We Specialize in "Tough" Die Problems

Many manufacturers depend on Advance for complicated stamping dies for difficult drawing and forming operations. The largest job, or the smallest, can benefit from Advance tooling techniques which have revolutionized many manufacturing processes.

If sheet metal stampings are a major part of your production cost, it will pay to consult Advance on your die and tool problems. We have the experience, engineering skill and mechanical facilities to meet your tooling requirements. Ask for full information.

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PHONE: WOODBINE 9191

BEAUTY PLUS UTILITY



Larkin refrigeration products are modern proof that engineering beauty can add to functional efficiency. Originator of the Cross Fin Coil, Larkin also produces highest quality in Humi-Temp Forced Convection Units—Bare Tube and Zinc Fused Steel Plate Coils—Evaporative Condensers—Air Conditioning Units—Instantaneous Water Coolers—and other superlative equipment for commercial and industrial refrigeration.



LARKIN COILS 519 MEMORIAL DRIVE • S.E.
ATLANTA • GEORGIA

Boiler Inspectors Plan Discussion of B9 Code At Chicago Meeting

CHICAGO—The ASA B9 safety code of mechanical refrigeration will be one of the subjects to be discussed during the 19th general meeting of the National Board of Boiler and Pressure Vessel Inspectors May 15-19 at the Sheraton hotel here.

The meeting is being held in conjunction with the regular meeting of the American Society of Mechanical Engineers' boiler code committee on May 17.

At the afternoon session May 16, Fred J. Allen of York Corp. will present a paper covering the history and aims of the B9 code and the effort to correlate it with the ASME pressure vessel code and other codes to provide uniformity in enforcement.

A paper on "Problems Confronting Manufacturers in Compliance with the ASME Pressure Vessel Code for Pressure Vessels Used in Refrigeration Systems" will be presented the same afternoon by Frank Stevens of Carrier Corp.

On the following afternoon, a panel consisting of members of the subcommittee drafting revisions to the code will consider this topic.

Other subjects to be discussed during the four-day meeting will deal with boiler installations, repair, hot water heating systems, automatic controls, and blow off tanks.

Commenting on the B9 panel session, Gerald Gearon, Chicago's supervising mechanical engineer and chief deputy inspector and a member of the National Board's executive committee, said he believes it will be "a forward step in the ultimate adoption by all jurisdictions of a uniform code for refrigeration installations."

Thor Details Program For Spring Advertising

CHICAGO—Details of a spring advertising program which begins this month and concludes June 19 were announced recently by William D. Stroben, advertising manager of Thor Corp. here.

The campaign will employ five major consumer magazines and two major Sunday newspaper supplements, Stroben said.

Two-color, full-page advertisements on the Automagic clothes washer and one-half and two-thirds pages on the Gladiron will be featured in *McCall's*, *Better Homes and Gardens*, *Good Housekeeping*, and *Woman's Day* magazines and *This Week* and *Parade* supplements.

Farm Journal will carry two-thirds page advertisements on the Gladiron and the Thor deluxe wringer washer. Stroben said also that the company now is preparing a schedule for insertions in trade publications.

Supplementing its national advertising plans, the company is conducting an intensive campaign for cooperative newspaper advertising at the dealer level, urging that local advertisements be run simultaneously with Thor advertisements in national publications, he asserted.

New Store Handles Philco, Bendix

CHARLOTTE, N. C.—Philco and Bendix appliances are featured by Charlotte's newest furniture house, the Weathers Furniture Co., which has recently opened for business at 1719 South Boulevard.

R. L. (Bob) Weathers, is president and general manager.

PRIZE PACKAGE

asAIRco air cooled
Refrigerated
WINDOW ROOM COOLER



Better dealer
profits with better
values—

Plug-in
installation
Write for
details

UNITED STATES AIR CONDITIONING CORPORATION
Como Ave. S.E. at 33rd • Minneapolis 14, Minnesota
BETTER DEALER PROFITS WITH BETTER VALUES

Bally Case & Cooler Co. Erects Fireproof Warehouse

BALLY, Pa.—Bally Case and Cooler Co., here, has erected a new fireproof warehouse of steel and concrete for greater storage of raw materials and finished stock, the company has announced. The new building is part of the company's plant expansion program.

It is expected that this increase in warehouse facilities will enable the company to handle the anticipated demand for seasonal cases such as small all-purpose display cases and bottle coolers. Orders can thus be filled from stock without delay.

Albany Garage To Distribute Fleetwood Display Cases

ALBANY, N. Y.—Albany Garage here, distributor for refrigeration equipment in this area, has been appointed distributor for the Fleetwood line of refrigerated display cases for 13 counties in the upper eastern part of New York state.

Springs Cotton Mills Will Air Condition Its 7 Plants by 1950

LANCASTER, S. C.—Officials of the Springs Cotton Mills have just announced that air conditioning of the corporation's seven plants will be completed by the summer of 1950. The extensive program has been in progress for several months, it is reported.

"At our Lancaster plant," a spokesman said, "six weave rooms and five spinning rooms have either been air conditioned or the work is in progress at the present."

"All spinning and weave rooms of the Springsteen, Gayle, and Eureka plants in Chester and those at the Kershaw plant will be completed before the hot summer months, according to plans."

"The same will be true for the spinning rooms at the White and Fort Mill plants, card room No. 1 of the Fort Mill plant, and the card room and weave room at the White plant in Fort Mill."

Galvanized Pipe and Sheet Prices Reduced as Zinc Drops

NEW YORK CITY—Price reductions of \$1.50 to \$2 per ton on galvanized sheet products and galvanized pipe were announced recently by two subsidiaries of U. S. Steel Corp.

The reductions were said to have come automatically with the one cent per pound drop in zinc prices announced previously.

Lippitt Joins Reynolds Metals As Manager for Alnesium Cases

LOUISVILLE, Ky.—A. L. (Pon) Lippitt, formerly midwest regional manager for Mills Industries, has joined the Reynolds Metals Co. here as product manager for Alnesium cases, David P. Reynolds, vice president and manager of the company's general sales division, announced recently.

Alnesium cases are a new product being manufactured for use in the bottling industry, according to the company.

Crosley Sponsors "Who Said That?" On NBC-TV Network

CINCINNATI—"Who Said That?" a news quiz-type network television show, starring Bob Trout, John Cameron Swayze, and featuring prominent guests, is now appearing on the NBC television network at 9 p.m. EST Saturdays under the sponsorship of the Crosley Div., Avco Mfg. Corp.

The program originates in the NBC-TV studios in New York City and is carried on all eastern and midwest network stations. In addition, it will be carried by film, beginning the third week in April, on selected non-network stations in all of the television cities not served by the network.

V. C. Havens, assistant general sales manager, said that Crosley's full line of products—Shelvador refrigerators, kitchen freezers, electric ranges, radio, and television sets—will be presented on the half-hour shows.

**YOU CAN BE SURE
...IF IT'S
Westinghouse**

**SELL THE LEADER...
SELL WESTINGHOUSE!**

**THE COOLER WITH THE
5-Year Guarantee Plan!**

**WESTINGHOUSE
PRODUCT GUARANTEE**

**"of course,
it's electric"**

**FIRST!
With a 5-Year Guarantee Plan!**

Yes, here's another Westinghouse First... a 5-Year Guarantee Plan on the entire Hermetically-Sealed Refrigeration System. This means that if any part of this system should become inoperative during the 5-Year period, you and your customer will receive a new unit at no cost.

Other selling features which make Westinghouse the Leader are convenient Foot Pedal Control, Automatic Stream Height Regulator, Stainless Steel Top and Anti-Squirt Bubbler. There's also a Push Button Bubbler Kit* which works in conjunction with the Foot Pedal Control. Look them over... you'll see why Westinghouse leads the way with these fast selling Water Coolers in seven models, a capacity and type for every need.

*Available at slight additional cost.

WESTINGHOUSE ELECTRIC CORPORATION
Appliance Division • Springfield, Mass.

BUILT RIGHT...PRICED RIGHT...AMAZINGLY FREE FROM SERVICE

**FOR FURTHER INFORMATION CALL YOUR
WESTINGHOUSE DISTRIBUTOR OR MAIL
THE ATTACHED COUPON TO
WESTINGHOUSE ELECTRIC CORPORATION
SPRINGFIELD 2, MASS.**

REQUEST FOR FURTHER INFORMATION

Name _____

Street _____

City _____

State _____

5ACRN

REFRIGERATION & AIR CONDITIONING
UNITS • PARTS • TOOLS • SUPPLIES

AIRO mail service is
prompt—dependable.
Saves you valuable
time lost in pick-ups.

Write for catalog on your letterhead.

AIRO SUPPLY CO.
2732 N. ASHLAND AVE., CHICAGO 14, ILL.

Some Say

"It's a Great
Life"

Will you have One?

Wolfert Joins Seeger To Manage Engineering, Research Department

EVANSVILLE, Ind.—John W. Krueger, vice president of the Evansville Div. of Seeger Refrigerator Co. has announced that Edward R. Wolfert, formerly manager of the electric appliance engineering department at the East Springfield Works of Westinghouse Electric Corp., will join the Seeger Evansville staff as manager of the Engineering and Research Department.

Wolfert has been connected with Westinghouse since 1923. He has been manager of the electric appliance engineering department for the past seven years, with direct responsibility over the design of electric refrigerators, food mixers, fans, waste-food disposal devices, water coolers, milk coolers, commercial refrigerators, and vacuum cleaners.

He has had extensive experience in the designing of feeder regulators, compensators, small transformers, relays, electronic devices, telemetering, air conditioning equipment, and many other electrical appliances.

He is the owner of 30 patents in his field of endeavor and is a member of the honorary engineering society, Tau Beta Pi, and the honorary scientific society, Sigma Xi. Wolfert was to join Seeger May 2.

Opens Basement Appliance Dept.

BUFFALO — The North Park Furniture Corp., 1386 Hertel Ave., has opened a new appliance department in the basement of the store.

Garbage Collection Costs Rise, So Mayor Proposes Disposer In All Homes

JASPER, Ind.—If an apparently unique plan of city officials is put into effect, electric garbage disposal units will be installed in every home in this Dubois County seat of 6,200 population.

Under the plan, the city would issue revenue bonds for the purchase, installation, and maintenance of the disposal units. The bonds could be paid off by fees assessed against house owners or occupants.

The plan was first proposed by Mayor H. E. Thyen. He suggested it as an answer to the twin problems of a steady increase in garbage collection costs and more and more difficulty each year in contracting for garbage collection at any price. This work now costs the city \$6,000 a year.

After Mayor Thyen presented the idea to the city council, the city attorney drafted a proposed law which would authorize adoption of the plan. A bill permitting municipalities to finance such a program was then introduced in the Legislature by State Senators Leo J. Stemle of Jasper and D. Russell Bontrager of Elkhart and passed by both houses.

Although the legal path is now cleared for action, it is expected to be some time before the plan becomes a reality—if it does.

For one thing, the new law requires cities and towns to have an adequate sewage disposal plant if they install garbage disposal units in homes. Jasper does not have such a

plant now, although construction of one is pending.

However, preliminary work relative to the plan is now being carried out. This involves securing and studying bids for the sale and installation of the units (1,400 would do the job, it is estimated), considering legal questions, and acquainting citizens with advantages of the program.

When these activities are completed, a final decision on the plan will be made. Mayor Thyen has predicted that the action will be favorable.

"We are sure we are doing something which the majority of the cities will be doing in 10 to 15 years," he said.

According to *The Dubois County Daily Herald*, this plan for eliminating garbage pails and collection trucks has "received the acclaim of municipalities and sanitation engineers as well as health authorities throughout the country. Manufacturers of the appliance also hail it as a boon to industry."

No other municipality has ever tried such a plan, the mayor discovered when he first sought information about it.

Crosley Offers Singing Commercial Radio Spots To Push Shelvador Sales

CINCINNATI—To promote sales of its Shelvador refrigerators during the spring and early summer, Crosley Div., Avco Mfg. Corp., has announced an extensive spot radio campaign using singing commercials.

V. C. Havens, Crosley assistant general sales manager, said that 211 radio stations in all distributor cities carried the spots 10 times a week during April. Cost of the April activity was borne entirely by Crosley, Havens said.

For the months of May, June, and July, Crosley is making the spots available to its distributors and dealers on a cooperative basis. The factory will share the cost of these too.

The spots, prepared by Benton and Bowles, are Crosley's first venture into the singing commercial field, Havens said.

The radio campaign is part of an extensive advertising and promotional activity, featuring the Shelvador refrigerator, which Crosley has scheduled for this year.

Other major media will include a half-hour television show to be broadcast over television stations in every TV city in the nation, a consistent national, trade and farm magazine schedule, and a series of large size factory-paid newspaper advertisements, supported by smaller versions to be released by dealers on a cooperative basis.

1900 Corp. Ups Production 15%, To Hire More Men

ST. JOSEPH, Mich.—With national sales improving, Nineteen Hundred Corp. here has announced a 15% increase in its production of automatic electric washing machines, conventional washers, and portable washers.

This production jump represents a change in the company's plans, a spokesman said, as the firm, less than a month ago, had expected to reduce output. Employment is expected to be increased by 6%.

It's No Bargain If You Can't Get Service, Dealer Warns Appliance Buyers

ROCHESTER, N. Y.—Hans Electric, 180 North St., used that old saw about no chain being stronger than its weakest link in a recent newspaper advertisement designed to stress the importance of proper service from an appliance store.

The advertisement was headed with a sketch of a chain snapping in the middle. Said copy:

"No chain is stronger than its weakest link and no manufactured product is better than the service policy of the dealer from whom you buy. No purchase of a home appliance is a bargain if you cannot be sure of one thing from the dealer who allows you a 'discount'. That one thing is Service. Prompt follow-up service. Comprehensive service."

A sub-caption said: "For Full Value, Take These Two Steps Before Buying Any Appliances:

"1. Choose a well-known, nationally advertised brand. This assures you of a reputable manufacturer.

"2. Buy from a dealer who guarantees that the purchase you make will be serviced. And be sure he Can and Will give you that service."

400 Attend Opening of Dixie Appliance Distribution Center

ROANOKE, Va.—Four hundred dealers and salesmen attended the recent formal opening of the Dixie Appliance Co.'s modern new distribution center here.

The Dixie concern, which has formerly operated in Bluefield, W. Va., will distribute Philco appliances in the Roanoke area, from a new location at Shenandoah Valley Ave. and Forest Rd. Offering both a complete service department and sales organization, Dixie appliance will serve dealers in 26 counties in Virginia and North Carolina.

Harry H. Lawson has been appointed vice president and general manager over both Bluefield and Roanoke operations, while Thomas H. Lambdon, veteran of 21 years as an appliance salesman, is manager of the Roanoke plant.

The company will retain its building in Bluefield, which will be operated by John A. Gott.

Give Your Refrigeration Equipment

More Customer Appeal . . .

SPECIFY HERMETIC UNITS

WITH BUILT-IN

KLIXON

Dome Mounted

PROTECTORS



Klixon Motor Starting Relay completes the combination required to start and protect the hermetic motor. Its positive action and long life eliminate starting troubles and make it a fitting companion for the Klixon Protector. Used and recommended by leading refrigeration manufacturers.

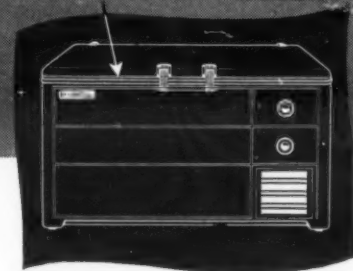
Regardless of what you manufacture . . . refrigerators, beverage coolers, frozen food cabinets, showcases . . . you can build a reputation for quality and dependability by using hermetic units with built-in Klixon dome-mounted Protectors.

Installed by the manufacturer of the hermetic compressor, these foolproof protectors keep motors from burning out. They take into account such factors as clogging of condensers, fan failure, low voltages, hot locations, poor ventilation — and prevent the motor from burning out by shutting off the power should the motor become dangerously overheated. When the motor cools, the protector automatically turns on the power permitting the unit to maintain refrigeration. Specify and insist on hermetic units with Klixon dome-mounted Protectors. They will reduce service calls, cut replacements and repairs, build customer goodwill.

KLIXON

SPENCER THERMOSTAT
Division Metals & Controls Corp.
2405 Forest St., Attleboro, Mass.

NEW COLOR
builds extra sales
for you in Deluxe
1949 **BEN-HUR**
FARM AND
HOME FREEZERS



● **COLOR**, is the new "buy-word" in home freezers! Introduced for the first time by the 1949 Ben-Hur Deluxe Farm and Home Freezer, Ben-Hur **COLOR** is meeting enthusiastic praise in homes everywhere — as a welcome means for brightening up home kitchens and making utility room decorating an exciting event again. But the rich "Ben-Hur Blue" is only ONE



of many new selling features in the Deluxe Ben-Hur 1949 Freezer. You'll like the new cabinet front design, new Latch with crystal-clear Lucite handle, new cold control* and temperature indicator, new wire food baskets and dividers, and new accessories — if you want them — like ice cube makers and alarm system. Add the FIVE YEAR GUARANTEE on the refrigeration unit, and other time-proven BEN-HUR features, and you have a Deluxe BEN-HUR Home Freezer line that deserves TOP BILLING in any sales program. Write for selling plan and full details TODAY. (*Patent applied for)

BEN-HUR MFG. COMPANY, Dept. AC, 634 East Keefe Ave., Milwaukee 12, Wisconsin

BEN-HUR FARM and HOME FREEZERS
HEALTHFUL LIVING THROUGH FROZEN FOODS

Advance Mfg. Redesigns Both Truck Unit Lines To Run Automatically

DETROIT—An improved line of truck-trailer refrigeration units that operate completely automatically, thereby eliminating the need for the truck driver to open and close hand valves, has been introduced by Advance Mfg. Co., 2700 Buchanan St. here.

The improved line is the 1949 version of the firm's Trail-Aire conditioners—units that are mounted entirely inside the truck body.

The company's "Little Giant" truck refrigeration units, which are mounted on the outside of the truck body, have also been redesigned so that the unit actually shuts off on the off-cycle instead of just slowing down, W. J. Campbell, vice president, declared.

Campbell explained that with the new Trail-Aire units, the driver is required only to set the thermostat at the desired temperature. The unit operates completely automatically from there on.

Requiring the driver to open and close hand valves had proved unsatisfactory in the field Campbell explained, because where one driver on a long haul would close the valves properly, the next driver to pick up the load sometimes forgot to do so, thus causing the system to operate improperly.

Other features of the new Trail-Aire units are larger coils with greater capacity, a reduction of weight by 200 lbs. through improved materials and construction, and the fact that the fan now completely shuts off during the defrost cycle. Formerly the fan did not shut off entirely and the driver had to close a damper during defrosting.

The Trail-Aire units are made in three models. One is an all-purpose model designed to pre-cool hot loads. It has a 60,000 B.t.u. capacity, Campbell claimed.

The second is a medium temperature unit that maintains temperatures above 32° F. The third is a low temperature unit for sub-zero storage.

The Little Giant units are manufactured in the same ranges, Campbell stated.

Servel heavy-duty compressors and "Freon-12" refrigerant are used on all models. On the low temperature model, compressors range from 3 to 7½ hp. On the others, they range from 3 to 5 hp.

Campbell claimed that on test runs, the Trail-Aire low temperature units have maintained -25° F. in a 32-ft. trailer with 6 in. of insulation at outside temperatures of 90° F. On trucks intended for short delivery routes such as local frozen food trucks, flash plates are used that can be supplied with or without eutectic solution.

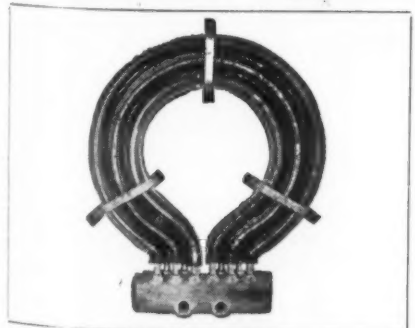
The all-purpose Trail-Aire unit is designed on a reverse cycle principle so that it can heat as well as cool if necessary. On tests, the unit has maintained 80° F. temperatures inside the trailer with ambient temperatures of 0° F.

The Trail-Aire units operate on either a gasoline engine or electric motor, Campbell declared.

He said that the company is now in production on the new models and has had them on test runs for several months.

ROME-CONDENSER

★ Jointless Type ★



Rome Water Cooled Condenser Coils insure trouble-free condensing equipment. Used by leading compressor manufacturers.

ROME-TURNEY
RADIATOR COMPANY
222 CANAL ST.
ROME, N. Y.

Refrigerated Shelving Gives Hospital Cafe Space to Store Salads for Rush

DENVER—Stainless steel refrigerated shelving fixtures along the cafeteria food service line are an outstanding feature at the new General Rose Memorial hospital, completed here in March.

The air conditioned kitchen of the institution, in addition to supplying foods for 250 bed patients, provides food service for 300 employees and many guests daily in a cafeteria located in the basement. A 40-ft. all-stainless-steel service line branches off the kitchen, for tray service to the cafeteria.

Both to eliminate "piling up" of demand for chilled salads and desserts, and to provide more tasty items, the cafeteria line includes two three-level service units for these items. The units are constructed of stainless steel, 6 ft. long by 24 in. wide, two such shelves over a recessed compartment of similar size, 8 in. deep, in the stainless steel top surface of the line.

Each service shelf contains a series of cold plates, connected with independent, ¼-hp. condensing units, which chill the metal surface to 35° or less. Thus, when anticipating large numbers of guests, or a heavy load of employees, the chef can prepare hundreds of salads and desserts in advance and stack them on the shelving units.

It requires only 45 minutes or so to chill down the metal to the proper temperature. The two units are turned on prior to luncheon and dinner hours, and shut off as soon as the cafeteria line is closed down. In this way, refrigeration costs are kept low, salads and desserts may be made up long in advance of serving time, and there is no feverish hustle of preparation to meet the demand.

The units were built for the hospital by Southern Equipment Co. of St. Louis, kitchen equipment manufacturer and installer.

Heated Rubber Strips Used To Cut Down Condensation In Quick Freezing Units

AKRON, Ohio—Extension of the use of the electrically heated rubber of the wire resistor type to industrial applications is announced by the B. F. Goodrich Co. here.

The electrically heated rubber is constructed of resistance wires insulated with fabric plies sandwiched between layers of rubber sheeting with the parallel wires running the length of the rubber.

Among uses already reported in industry for this rubber by B. F. Goodrich is a strip heater for moisture control to reduce condensation in a sharp freeze unit.

The company says the rubber can be furnished in any reasonable size, shape, or weight and for temperatures up to 300° F. Heating of the rubber starts when it is connected to any electrical outlet.

American rubber of a type which is heat, weather, and oil resistant is

used. It can be applied by adhesion or placed on a metal background for bolting into permanent position.

Each application in which the heated rubber is used must be engineered separately, with size, voltage, and temperature desired entering into the calculations.

Among immediate uses which the company foresees for electrically heated rubber are to free material frozen in chutes or bins, stop freezing in pipes, and maintenance of temperature in hydraulic systems.

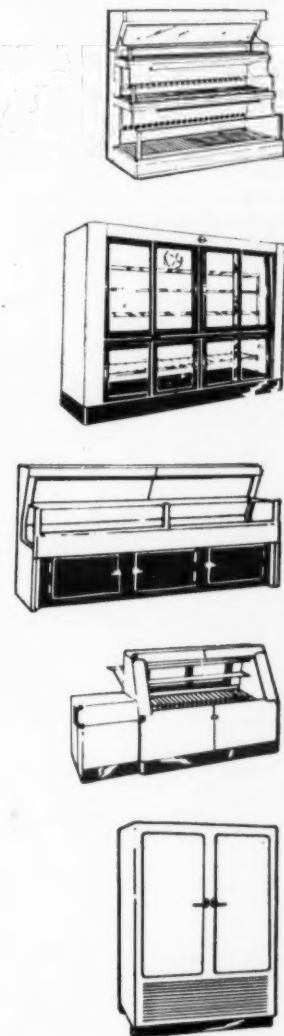
Stable '48 Domestic Sales Help Super-Cold Profit Beat 1947

LOS ANGELES—Super-Cold Corp. and subsidiaries recently reported a net profit for the year ended Dec. 31, 1948 of \$80,379, or 13 cents per share, as compared with \$70,271 or 11 cents per share in 1947.

Net sales for 1948 were \$4,917,685 as compared to \$5,567,123 in 1947. Declining export sales accounted for much of the loss, according to the company, which reported domestic sales about the same level as 1947.



Model 6710 Wide Shelf Display Case



Made extra-wide purposely; so that shoppers are sure to see it. Made extra large purposely; to give room for colossal displays. Made extra roomy purposely; to give space for silent salesmanship.

The merchant who wants to sell more perishables per square foot of floor space and more per foot of wall space needs this extra-wide KOCH fixture.

Thorough refrigeration. Plenty of cold for both display and storage sections.

Designed for continuous arrangement. Any number of cases can be placed end-to-end. Simply remove the glass ends, and install an extra shelf section over the junctions.

This new case is typical of the quickly-enlarging KOCH line ... the line of least resistance. It is easy to sell ... easy to make more and bigger profits!

KOCH Refrigerators

NORTH KANSAS CITY 16, MO.

SINCE 1883

Send Today for Details and Open Territories

KOCH Refrigerators
North Kansas City 16, Mo.
Gentlemen:

Please send full information on the KOCH line of refrigerators.

Name _____ Title _____

Address _____

Firm Name _____

City _____ Zone _____ State _____

INSIDE DOPE

by GEORGE F. TAUBENECK

(Concluded from Page 1, Column 1)

Home freezers and larger freezer-storage compartments in modern refrigerators are abetting this trend. So are ice cream cabinets in grocery stores. The latter are selling more and more of the nation's ice cream. Druggists are losing out because they are neglecting the kids in particular and the ice cream trade in general.

Manufacturers and merchandisers of ice cream cabinets should join this parade to the food store by designing their products to catch the eye of food shoppers. Most ice cream cabinets are hidden. Why? Because they aren't eye-catchers. Usually they're black, and nearly always they're below eye-level. The adding of a package or two of ice cream to food shoppers' baskets can be stimulated by ice cream cabinets which have colorful, eye-level displays. "Impulse purchasing" has to be auto-suggestive in self-service stores.

Helping a Sick Business

Lest the enjoyment of ice cream confections sink slowly into an abyss of neglect, the purveyors of low-temperature cases also must lead a great many ice cream producers by the hand and show them how to receive the natural taste for this healthful food.

In the main, ice cream producers

are farmers, or men with farm backgrounds. That's why the skills and techniques of merchandising are somewhat foreign to their natures. Farmers are fatalists. Their success or failure often seems to be in the lap of the gods. Forces over which they have no control—the weather, the market, the government—dictate their incomes.

Specialty merchandisers, on the other hand, are anything but fatalistic. They take "fate" into their own hands, squeeze it, and make it squirm. When their incomes drop temporarily, good specialty merchandisers know how to go out and get more sales dollars.

People in our industry have the specialty selling "know how," which ever so many ice cream purveyors lack. That's why it's up to us to lead them by the hand.

It might be important at this point to ask the question: "How well is the ice cream industry prepared to compete for its fair share of the consumer's dollar in a highly competitive market?" (By a competitive market we're not referring to competition within the industry itself, but to thousands of other foods, soft drinks—and even television sets!—which are battling for their share of current "impulse purchases.")

When you and I were kids in knee pants we could treat ourselves to an ice cream soda, a sundae, or an ice cream cone, provided we could find a place that sold it—and provided we were prepared to eat it "on the spot." Today ice cream is available in a variety of outlets—and in a variety of different forms and flavors—and we can eat it "on the spot" or "take it home."

So, ice cream manufacturers have

overcome two big obstacles to volume sales: they have made their products *easy to buy*, and they have packaged their ice cream to make possible *take home* sales. Trouble is, while "protecting" old customers (drugstores) who actually are turning their backs on ice cream merchandising, the ice cream people are doing little to encourage purveyors of "take home" ice cream (food stores, filling stations, and other new types of ice cream outlets).

Efforts are being made by some (but not enough) ice cream manufacturers to encourage their dealers to move the ice cream cabinet from behind the counter, and out where customers can see it. That gives ice cream a fair chance to compete with other merchandise on display—gives it a chance to stimulate "impulse sales"—and broadens the opportunities for the use of all types of "point of sale" promotion.

Manufacturers of ice cream cabinets can aid this encouraging trend by adding eye-level displays to their cabinets—displays like three-dimensional pictures in color, arresting bulletin boards calling attention to new flavors, and the like.

Slightly Encouraging Trends

During the past two years a little bit has been accomplished in getting the ice cream industry to accept the need for promoting its products. A paltry few ice cream producers are driving their dealers to sell ice cream—or at least to foster "impulse sales"—so as to restore the waning volume of ice cream consumption.

Properly designed equipment, and education on how to use it most effectively to create "impulse sales" and to promote new flavors, is a very

solid contribution our industry can make in strengthening the merchandising methods of the point-of-sale business we serve.

Another important move in recent years has been the promotion of the idea that "ice cream is a food." When ice cream can claim its fair share of the family food budget, instead of being considered a luxury, then both the ice cream people and our own industry will build a solid foundation for future growth.

Indirectly, refrigerator and home freezer manufacturers are helping put across this idea that "ice cream is a food." In a number of advertisements in recent issues of consumer magazines, ice cream appears along with other foods in the illustrations of various refrigerators and home freezers. This continuing association of ice cream with meats and vegetables is effective in gaining acceptance for the idea that ice cream is a valuable part of every family's daily diet.

With the eventual acceptance of the idea that "ice cream is a food" almost surely there'll come definite changes in the distribution and merchandising of ice cream. First of all, if ice cream is widely accepted as a food, it must—like sugar, coffee, and canned goods—become a standard stock item in every food store.

According to a recent estimate, only 58% of the nation's food stores is now selling ice cream. That figure will need to be boosted to 100%—and a lot of ice cream manufacturers who have not been encouraging this type of outlet will need to do a quick "about face" to get their share of the food store business.

The volume possibilities for moving ice cream through food stores, department stores, gas stations, and recreational centers, are tremendous. In fact, they're fabulous. BUT, for the first time in their careers, ice cream manufacturers will find their products bucking up against big league competition—products that are packaged to attract the eye—priced to meet "down the street" competition—and bearing brand names that are household words.

Against the 1,500 to 3,000 items fighting for attention on the shelves of the average grocery store or supermarket, the ice cream manufacturer must find ways and means to attract customers to his products—remind them to buy—make it easy for them to buy—and close the sale.

Because of its attractive gross profit, and the ease with which it can be stored and displayed, the ice cream manufacturer may not find it difficult to get his product into the food store. He will find, however, that his big problem is to get his product into the market basket of the customer before she walks out of the store door.

This job of getting an "unaccustomed" specialty product into the market basket isn't impossible, as various frozen food producers have proved.

Ice Cream Every Sunday

Here's a "for free" suggestion for increasing the nation's consumption of ice cream tremendously:

Ice cream cabinet manufacturers might prod the ice cream industry into a giant promotion campaign to make *Ice Cream Every Sunday* a national habit (like fish on Friday).

This could be the pitch: Sunday is a day of rest for everyone except Mama. That's the day when she has to cook and prepare the biggest meals of the week. At the same time, Papa is loafing around home, possibly being critical, and demanding service. The kids aren't in school—they're under foot and in her hair.

Should ice cream become established nationally as the regular Sunday dessert Mama would be spared at least one of her hectic Sunday duties (she wouldn't have to bake a pie or cake). Why not give Mama a break? Let's make Ice Cream Every Sunday a national habit!

Summation

Ice cream is a universally favorite food with men, women, and children. It is also an exceedingly profitable item for the food retailer.

The raw materials and the equipment needed to manufacture and sell the product can be made available in unlimited quantities.

Only negligence, self-satisfaction, lassitude, and the straying away from common, ordinary tenets of good business management can stop

the sound growth of the ice cream industry. However, changes must be made to meet changing conditions and changing times. Changes will not be easy for an industry which has been conservative, to say the least, in its approach to merchandising problems.

That's where we come in, we people in the ice cream cabinet business.

Here's what we can do:

1. Advise ice cream manufacturers on trends and changes in consumer buying habits.

2. Prepare factual information on the type and size of equipment best suited to various types of retail "shops."

3. Devise information (test data if possible) regarding the best locations for cabinets to increase "take home" sales and "tie-in" sales.

4. Design cabinets with a high degree of "eye appeal" to stimulate "point-of-sale" purchases of ice cream.

5. Provide data on new-type retail outlets—such as gas stations and recreation centers—which can increase package sales.

6. Present showmanlike promotional ideas to stimulate "impulse" buying.

7. Promote the "Ice cream is a food" idea.

8. Suggest and push an Ice Cream Every Sunday campaign.

If we do these things conscientiously and with imagination, ice cream cabinet sales once again will compare favorably with those of any other refrigerated appliance—and might even become a "leader."

Those Cycles—Damn 'Em

Against our will and possibly our better judgment, we've reported in this column several supposedly scientific discoveries about business and human cycles—how Fate seems to affect our daily lives.

Well . . . they've done it again, those Cyclists.

A Smithsonian Institute researcher has announced that anyone can predict whether it is going to get hotter or colder, and can do it as well as (or better than) the government "weathermen."

It is possible, this Cyclical Predictor insists, to forecast changes in temperature over a one-year period or even for ten years. He also claims that anyone can predict the amount of rainfall which will drop any place in our country for the next 46 years.

In the course of charting weather observations for the Smithsonian Institute, this researcher found that the "output" which the Sun gives off constantly fluctuates. Over the years there is a regular cycle for this increase and decrease in the Sun's output. Its primary cycle occurs every six and two-thirds days. Every six and two-thirds days the earth goes from a cool period to a warm period and back to a cool period.

The amount of this change varies in different localities, but a study of weather records makes it possible to compute the temperature swings for any area. These changes occur 55 times a year in any locality.

To do the same kind of cyclical forecasting for any area, all anyone need do is to check over back weather reports and then select a day when the temperature is at the bottom of a cycle as a basis for predicting weather during the ensuing week—it says here.

Things are getting so that almost nothing is left to chance any more. And that takes a lot of joy out of life.

NEW

usAIRco

STORE
CONDITIONER

PACKED WITH SELLING POWER!

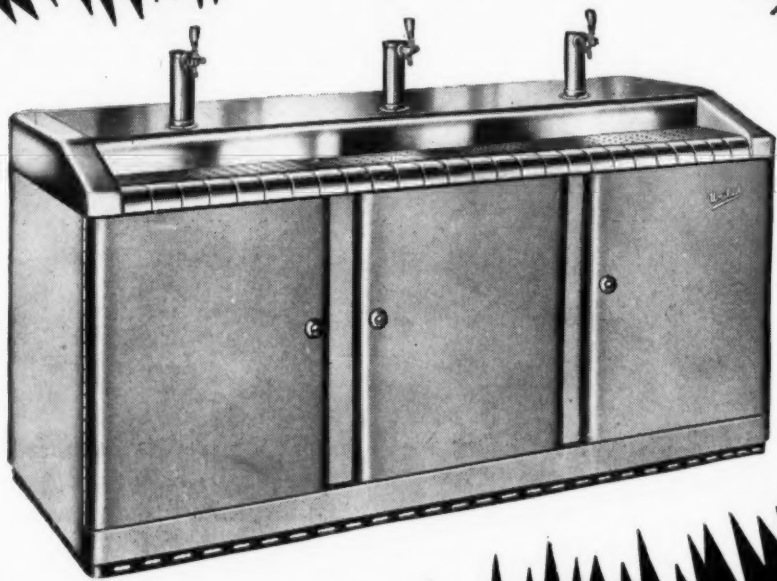
Mr. X, one of the industry's most talented designers, developed three sizes . . . 3, 5, 7 tons.

WRITE FOR DETAILS

United States Air
Conditioning Corporation
Come Ave. S.E. at 33rd
Minneapolis 14, Minnesota

Better dealer profits with better values

"RADIANT BEAUTY PLUS!"



5 YEAR WARRANTY
on all hermetically
sealed refrigeration units.

United

IN THE NEW
KOOLMASTER

Keg Cooler and Beer Dispenser

DESIGNED, ENGINEERED, MANUFACTURED — HUDSON, WISCONSIN

● Radiant beauty truly describes the New United Koolmaster . . . its brilliant stainless steel top contrasts most attractively with the soft brown du Pont Dulux long wearing baked enamel finish.

● Years of satisfying trouble-free service are assured, due to the ALL STEEL construction of the Koolmaster and the rigid testing this fine product is subjected to at the factory.

● The Koolmaster is also available in an all stainless steel exterior at a slightly higher price.

● Thermostatic control, custom designed cooling coils, efficient circulating blower and more than adequate extra-heavy insulation combine to insure a CONSTANT 40° temperature at all times.

● The Koolmaster is one of the first to make their self-contained condensing unit models a compact, one piece unit . . . gives greater space saving under back bar, more pleasing overall appearance.

● Two-keg and three-keg sizes designed with self-contained condensing units or for remote control.

New . . . ADDED
CONVENIENCES

New shiny chrome "push-button" door latches are built flush with cabinet, providing easy and safe access.

New full length concealed hinges are of heavy duty design for long trouble-free service.

Compare point for point . . . compare prices . . . and you'll buy United!

FOR FURTHER INFORMATION WRITE

UNITED REFRIGERATOR COMPANY • HUDSON, WISCONSIN

Kelvinator '49 Water Coolers Priced Below Level of Last Year

COLUMBUS, Ohio—Prices on the recently announced Kelvinator 1949 line of water coolers have been set at below those on comparable 1948 models, H. C. Patterson, Kelvinator's commercial sales manager, revealed recently.

The reduction ranges from \$7 to \$35, he said.

The prices are as follows:

Model No.	*Old Price	New Price
BE-2	\$220.00	\$213.00
BE-R	294.00	284.50
PE-5	244.00	231.00
PE-10	274.00	253.50
BE-2-V	244.00	236.00
BE-RV	318.00	304.00
PE-10-V	298.00	260.00

*Price on comparable model in 1948 Kelvinator line.

Patterson pointed out that prices on all models equipped with sealed units include a five-year warranty, delivery, and start-up.

Dept. Store Sales Slump Reflects Post-Easter Buying

WASHINGTON, D. C.—With all Federal Reserve districts reporting declines, department store sales for the week ending April 23 were off 10% from the comparable week last year, reflecting a post-Easter slump, the Federal Reserve Board has reported.

The board said that the Dallas district took the sharpest drop with an 18% decrease. The Boston district made the best showing with a decline of only 4%.

Kalamazoo Stove Shows Loss Of \$220,767 for First Quarter

KALAMAZOO, Mich.—A net loss of \$220,767 for the March quarter was reported by the Kalamazoo Stove & Furnace Co. here recently. During the same quarter last year, the company earned a net profit of \$372,419, or \$1.24 per share.

Holiday Provides Market

Dealers Team Up In Drive For 'Mother's Day' Sales

BADEN, Mo.—A record volume of new refrigerators as Mother's Day gifts was sold this spring here by eight Frigidaire franchised appliance dealers who "teamed up" for the promotion.

Each dealer over a three-week period sent his outside salesmen or used direct mail to contact homes of elderly couples to obtain names and addresses of sons and daughters. The latter were then followed up.

Salesmen suggested that children cooperate to buy a new refrigerator as a surprise gift for Mother's Day. This "clubbing" of the expense got good results from about half the prospects contacted, according to a typical dealer, with the result that 20 refrigerators were sold in six days.

"It's the same idea as office employees chipping in to buy the boss a Christmas present," another dealer said.

The same eight dealers cooperated in publishing a full-page newspaper advertisement in the North St. Louis Community News. At the top of this advertisement was a cut of a grey-haired lady, with the heading reading "She Deserves the Best. Mother's Day, May 8—Give Her Frigidaire."

Dealers cooperating included Watson Furniture Co., F. A. Schmidt Electric Co., Kassing Goosen Furniture Co., Gausman Parker Furniture Co., Kroemeke Home Furnishers, Gregson Furniture Co., Breheny Furniture Co., and Leaver Furniture.

Prices of Improved Estate Ranges Decrease \$20-\$30

HAMILTON, Ohio—Price reductions of \$20 and \$30 have been made on the electric range line of the Estate-Heatrola Div., Noma Electric Corp. and the lowered prices are guaranteed through July 1, Cecil M. Dunn, general manager, asserted recently.

The old and new prices, by model, are as follows:

Model	Old Price	New Price
4903	\$269.95	\$239.95
4905	299.95	269.95
4907	339.95	319.95
4909	379.95	359.95

Dunn also said that improvements equal to a retail value of \$10 have been added to the line. These include Adjusto-Seal doors, improved heat-seal stripping, and a cutaway rear base for flush-to-wall installation.

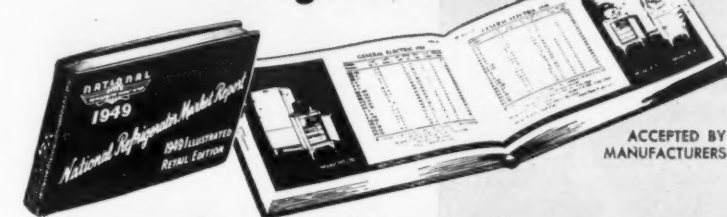
Harold Hills Becomes Head Of Omaha Dealer Group

OMAHA, Neb.—Harold Hills, appliance sales manager for Orchard & Wilhelm Co. here has been elected president of the local Appliance Dealers Association.

He succeeds Jack Elliot, who resigned recently due to ill health.

The association also announced that F. E. Maxson of Benson Implement and Appliance Co.; Ben Pfeiffer of Ace Appliance Co.; and Dick Dean, Jr., of Dick Dean Service store had been appointed to the board of directors.

CAUTION Play Safe When Making Refrigerator TRADE-INS



One trade-in based on this BLUE BOOK will more than pay for the book

Always use the National Refrigerator Market Report

BLUE BOOK

"The Original" since 1938

Over 200 pages listing more than 2200 makes and models...

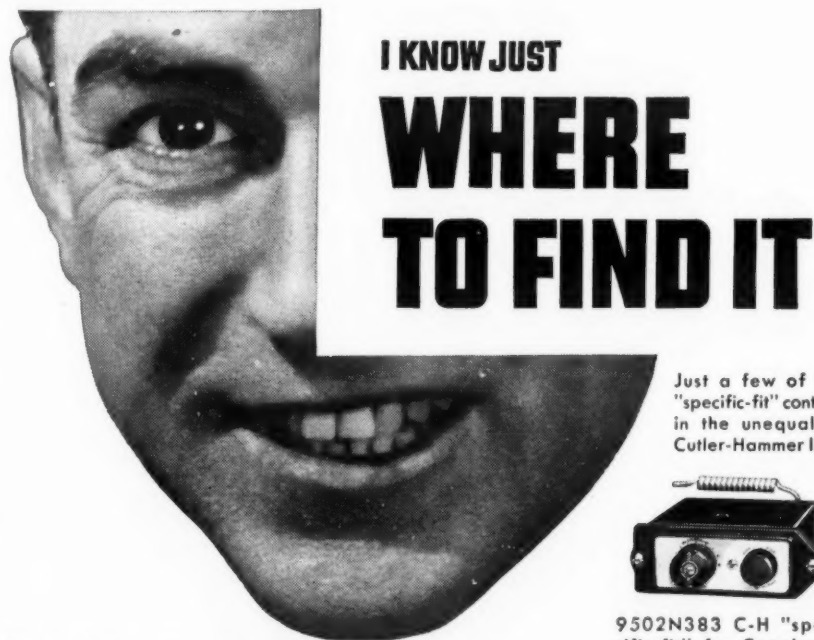
ORDER YOUR 1949 ILLUSTRATED EDITION NOW! \$5.00

Please send at once _____ copies of the NATIONAL REFRIGERATOR MARKET REPORT
Enclosed Please Find: ☐ Check ☐ Money Order

NAME _____
ADDRESS _____
CITY _____

NATIONAL REFRIGERATOR MARKET REPORT, Inc.
P. O. Box 606, West Los Angeles 25, California

This book may be obtained from your distributor or refrigerator manufacturer... or you may order direct by using this convenient coupon.
Mail with your check or money order. We pay the postage.



I KNOW JUST
**WHERE
TO FIND IT**

Cutler-Hammer makes "specific-fit" replacement units for each of more than 1000 different refrigerator models

Smart service men are standardizing on Cutler-Hammer replacement controls. No "modifying", no fussing, no delays when you answer service calls with C-H "specific-fit" replacement control units. You take out the old, put in the new... and you are through! It's the easy, sure way to do the job right because Cutler-Hammer has manufactured such "specific-fit" units for more than 1,000 models of refrigerators built since 1925. And you'll also quickly see how the widely-known Cutler-Hammer name (advertised in The Saturday Evening Post, Time, Newsweek, American Home, Better Homes & Gardens, House & Garden, etc.) builds customer confidence and good will. The C-H refrigeration control catalog, as well as the items you need, are available through your authorized C-H refrigeration wholesaler. Do not forget, this C-H refrigeration control line includes the popular general purpose two-button replacement unit (Type 9502) which incorporates dependable motor overload protection. CUTLER-HAMMER, Inc., 1362 St. Paul Ave., Milwaukee 1, Wisconsin.

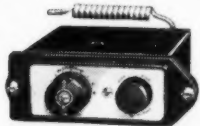
Featured by Cutler-Hammer refrigeration wholesalers and recommended by alert service dealers from coast to coast



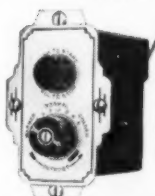
9502N453 C-H "specific-fit" for Stewart-Warner 1937 models.



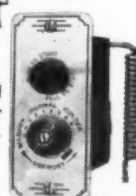
Just a few of the "specific-fit" controls in the unequalled Cutler-Hammer line.



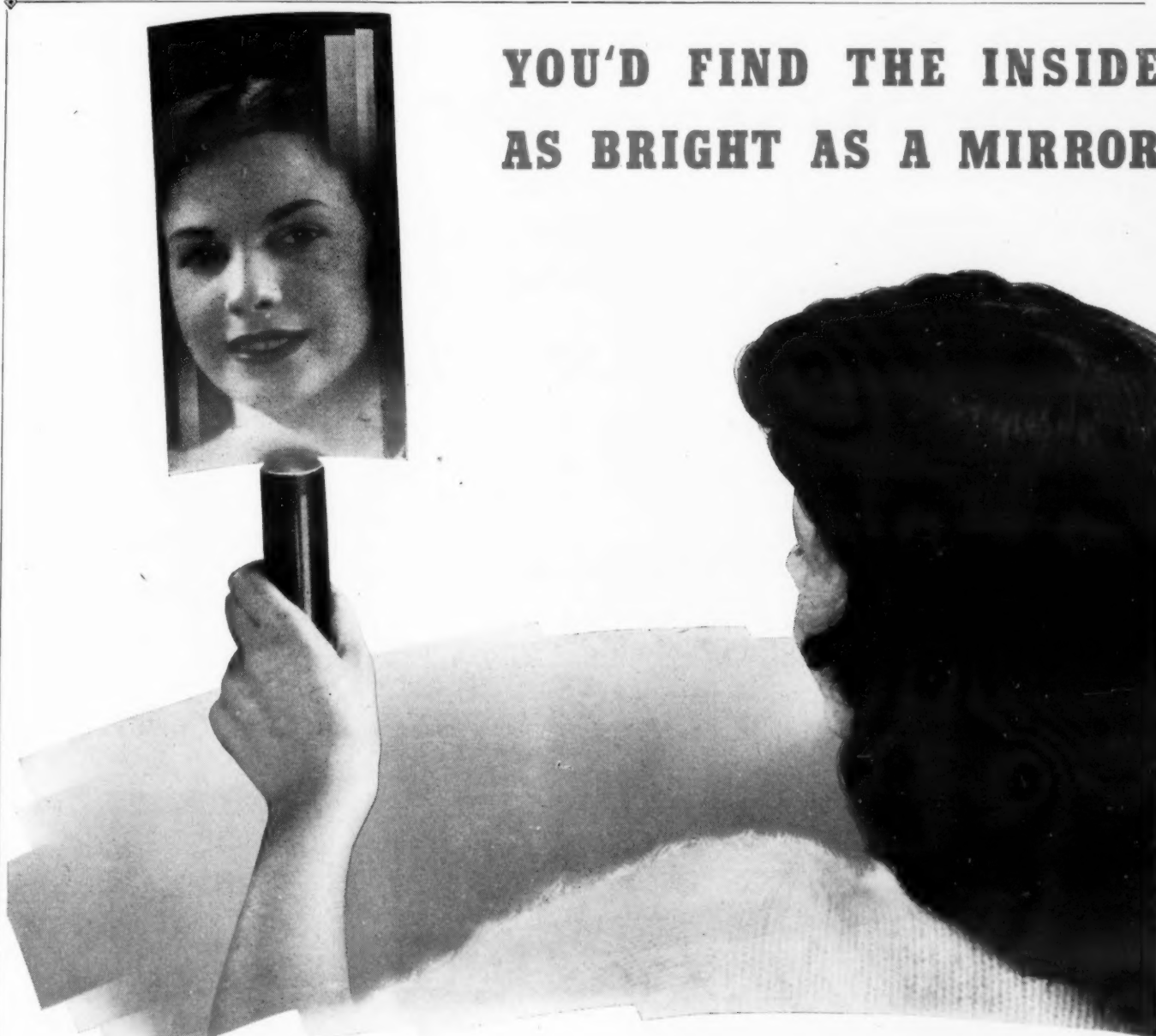
9502N383 C-H "specific-fit" for Copeland 1937-1938 models.



9502N95 C-H "specific-fit" for Tagliabue models.



9521N29 C-H "specific-fit" for Frigidaire 1936-37-38 models.



YOU'D FIND THE INSIDE
AS BRIGHT AS A MIRROR

If you would split open a section of Wolverine Copper Refrigeration Tube and enlarge it, you'd find the inside as bright as a mirror. But that mirror-like finish is not the only quality that recommends the use of Wolverine refrigeration tube. Consider these also: the tube is dry, soft, uniform—and is held in superior prime condition by virtue of the crimped, solder-sealed ends—until the tube reaches you—in its protective individual carton.

Packed individually in 50 ft. coils, Wolverine seamless, non-ferrous tube is—

- Easy to Buy
- Easy to Handle
- Easy to Inventory
- Easy to Stock
- Easy to Re-Ship
- Easy to Use
- Easy to Merchandise



WOLVERINE TUBE DIVISION
CALUMET AND HECLA CONSOLIDATED COPPER COMPANY
INCORPORATED
MANUFACTURERS OF SEAMLESS NON-FERROUS TUBING

1413 CENTRAL AVENUE

DETROIT 9, MICHIGAN

Refrigeration Enables Bakery To Handle 100% Greater Variety

LINCOLN, Neb.—The application of modern refrigeration to the retail bakery business as utilized in storage, dough conditioning, display, and air conditioning, has paid off "in a big way" for Forrest W. Coffman, proprietor of Coffman's Bakery, 138 S. 11th St.

Taking over the downtown retail bakery in 1947, Coffman has skyrocketed sales between 400 and 500%. The number of persons employed has increased from two to 16.

The bakery which he took over produced quality bakery goods and had a fine location, Coffman pointed out. But what it took to boost business included improved appearance, larger selection of products, and better merchandising. Refrigeration and air conditioning played an important part in each of these categories, he said.

A feature attraction is a new display case made by the Selb Co. of St. Louis. Its blonde finish matches that of other new display fixtures and woodwork.

It is indirectly lighted by fluorescent tubing and has five shelves for maximum display surface, housed in a space 40 in. long and 24 in. deep at the base, tapering at the top where the last shelf is 12 in. deep.

Two sets of flat coils are used, one about a third of the way up from the bottom and the other at the top, to assure equal distribution of cold air. Humidity control is provided to keep displayed goods from drying out.

The self-contained refrigeration unit with 1/4-hp. compressor is housed

in an adjoining compartment whose flat top is somewhat lower than the top of the display section and makes a highly efficient work counter for packaging or showing baked goods from the case, Coffman declared.

Coffman pointed out that without such a display fixture, during the summer months custard and whipped cream-filled pastries would have to be sold on special order only. This way he can do a full-scale business on such items.

Incidentally, Lincoln Health Department authorities have expressed

unreserved approval of the new case, in view of several cases of food poisoning from cream-filled goods which have occurred in Nebraska during the summer in years gone by.

When the case was installed recently, the baker ran an advertisement which read:

"Coffman's leads again . . . we have just installed a new refrigerated case . . . the only one in Lincoln and one of the first in the State of Nebraska. This modern refrigerator case is well lighted with fluorescent lighting and merchandise is so displayed that you can easily see and choose from delicious pastries. This new case insures cleanliness and is highly endorsed by the health department. . . ."

A 3-hp. Chrysler Airtemp air conditioning unit also has been installed in the sales room. The proprietor explained that air conditioning is a necessity in Nebraska in the summer months as a means of inducing people to trade in a store.

But air conditioning does not eliminate the need for refrigerated display of cream-filled pastries, since considerably cooler temperatures are required for proper preservation than is afforded by room air conditioning, he noted.

COOLING STOPS 'FOGGING'

Furthermore, air conditioning and refrigerated display go together because the case is inclined to fog over if proper room temperature is not provided.

In the realm of good selection of bakery products, refrigeration is the cog wheel on which more efficient production revolves, Coffman stated.

A big Friedrich retarded dough box was installed in the back room to keep Danish pastries made up and ready for the oven in advance of actual need. Without modern refrigeration, the bakery would be able to offer only about half the variety in baked goods that it now does, he said.

The retarded dough box also has humidity control which is essential in preservation of Danish pastries.

'ASSEMBLY LINE' PASTRIES

The production department has been streamlined so that more people can work in limited space. Ingredients are made up at the rear of the shop near the basement lift. Mixers, sheeters, proofer, and baking oven are in "production line" arrangement so that there is no doubling back to waste time and effort or create confusion.

Baked goods coming out of the oven need be wheeled only a few feet to be placed in the service rack connecting with the retail store. Refrigerated storage for perishable ingredients is afforded by a custom-built box with Frigidaire unit. This box and the retarded dough refrigerator each operate on 1/4 hp.



Blonde finish of case for cream-filled pastries matches other display fixtures and woodwork at Coffman's Bakery.

45,000 Frozen Food Lockers Serve British Columbia, Speaker Says

VANCOUVER, B. C., Can.—M. W. Seymour, Duncan, B. C., was elected president of the B. C. Cold Storage Locker Association at the annual convention here.

Other officers and directors elected were Douglas Gordon, Chilliwack, vice president; Mrs. Jean Armstrong, Langley, secretary; William Clappison, past president, Peter Boden, and Guy Fraser, New Westminster; K. G. Tyrrell, Victoria, Donald Beatty, Kimberly; Harold Foss, Lochdale; C. Spencer, Kamloops; W. H. Cross, Vernon, and Harold Calkins, Lulu Island.

There are now 45,000 frozen food lockers in B. C., serving approximately 170,000 persons, Seymour stated. He said the total amount of food handled through lockers in Vancouver last year was approximately 18 million pounds.

Optimism about the future of the business was voiced by John Trullinger of Portland, who said the locker business was still young.

Freezer Distributor Named for Harvester Line in Chicago Area

CHICAGO—International Harvester Co. has announced the appointment of Remco, Inc., 545 N. LaSalle St., as wholesale distributor in the Chicago area for the complete line of International Harvester refrigerators and home freezers.

According to R. E. McGreevy, Remco president, his firm now is franchising retail dealers for the Harvester refrigeration line in Cook, Lake, and DuPage counties, Illinois, and in Lake and Porter counties, Indiana.

Willis O. Jackson Heads Sales At Edwards-Harris Co. In South

ATLANTA—Appointment of Willis O. Jackson as general sales manager of Edwards-Harris Co. distributor of Deepfreeze and other appliances, has just been announced here. Until recently Jackson was associated with the Cannon Distributing Co.

How to pick a winner



Model DC18-2D
SPECIFICATIONS
Capacity: 18 cu. ft.
Floor Space: 28" x 98 1/2"
Over-all Height: 62"
Motor: 110-120V.
Compressor: 1/2 hp.
Five Dividers included.

Frozen food display cases may look alike, but there is a vast difference in performance. To get a winner, choose the case made by an established manufacturer, engineered for maximum, day after day low-temperature service, and designed to sell frozen foods. BTC Frozen Food Display Cases have all these essentials . . . motor, compressor, and full-flooded evaporator plate liner engineered for correct low-temperature storage . . . all-steel Bonderized cabinet with five inches of insulation, vapor sealed . . . sales-stimulating color picture superstructure, one-piece stainless steel top capping, easy-access Thermopane sliding glass lids.

Also Model DC18-2M with standard mirror superstructure and Model DC18-2Vin. with lighted Vinylite color pictures.

THE BREWER-TITCHENER CORPORATION
Binghamton, N. Y.

ANSUL OIL

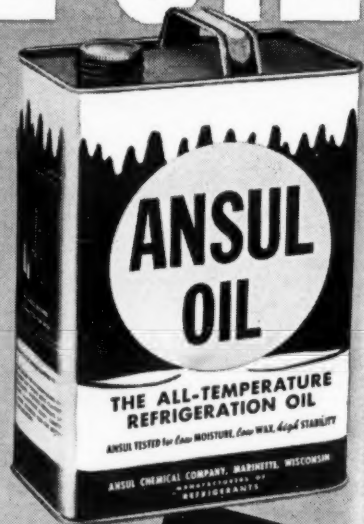
THE ALL-TEMPERATURE
REFRIGERATION
OIL

Recommended for air conditioning and refrigeration systems using standard refrigerants.

ANSUL OIL is an ALL-Temperature Refrigeration Oil which conforms to the rigid wax-free specifications established by Research. It will not separate wax when mixed with a refrigerant (under specified conditions) and subjected to temperatures as low as SEVENTY DEGREES BELOW ZERO (Fahrenheit).

ANSUL OIL has been machine tested for lubrication and wax-free characteristics in both high and low temperature installations. It is absolutely uniform . . . maintains high stability and has a low oxidation rate. It has proved suitable for ALL refrigerating systems using any of the standard refrigerants.

Ansul Research was first to recognize the problems resulting from low-temperature wax separation in oil-refrigerant mixtures. It realized the critical need for an oil which would not only lubricate and protect moving parts but would also eliminate the persistent troubles which were traced to wax-separation from oil-refrigerant mixtures.



ANSUL TESTED FOR
✓ LOW MOISTURE
✓ LOW WAX
✓ HIGH STABILITY

ANSUL 150 OIL — The All-Temperature Refrigeration Oil — is sold by leading refrigeration wholesalers everywhere. (If you require a higher viscosity oil ask for ANSUL 300.) Get ANSUL OIL where you buy your Ansul sulfur dioxide and methyl chloride.

ANSUL CHEMICAL COMPANY
REFRIGERATION DIVISION, MARINETTE, WISCONSIN
ANSUL SULFUR DIOXIDE, ANSUL METHYL CHLORIDE, ANSUL OIL, KINETICS 'FREON'

1948 Sales Volume Sets New Record at Remington

CORTLAND, N. Y.—New high records in sales, earnings, and working capital were established in the fiscal year ending Dec. 31, 1948, by Remington Corp., manufacturer of room air conditioning units, Herbert Livingston Laube, president, disclosed here recently at the annual stockholders' meeting.

Net income from 1948 air conditioner sales, after provision for Federal income taxes, etc., was \$1.09 a share as against 1½ cents a share for the previous year.

Red Stidfole, vice president and plant manager, was elected a director.

Other directors re-elected by the stockholders include Caleb Candee Brown, Jr., Chas. H. Churchill, Herbert Livingston Laube, and M. Mark Watkins.

M-H Manual Describes Controls for Schools

MINNEAPOLIS—Automatic Controls for the modern school are the subject of a new manual published by the Minneapolis-Honeywell Regulator Co.

The non-technical booklet, written for school board members, superintendents, architects, and engineers, describes control systems for school-house heating, ventilation, water temperature, refrigeration, and boiler rooms.

Fuel-saving instruments which make it possible to maintain different temperatures in different rooms and zones of a school building also are described.

New instruments and controls developed for the specialized needs of school buildings and which raise health and comfort standards to new peaks of efficiency are discussed in the booklet.

Also discussed are safety controls and similar devices designed for application on all types of heating systems using coal, oil, or gas as fuel.

Copies may be obtained by writing to the company here.

National Fire Protection Assn. Plans Air Conditioning Session

SAN FRANCISCO—"Air conditioning and blower systems" will be among the discussion subjects at the "special hazards" section of the annual meeting of the National Fire Protection Association, to be held May 16-19 at the Hotel Fairmont here.

The special hazards session will be held Wednesday morning, May 18, the association said.

Ice Cream 'Profit Story' Told In Taylor Brochure

BELOIT, Wis.—A new edition of "Little Stories of Big Successes," which gives the profit story on ice cream and other frozen desserts, has been announced by Tekni-Craft, manufacturer of ice cream freezers here.

The profit story is told through reports of users. The book also illustrates the 1949 models of Taylor freezers and shows their construction and features.

Copies are available upon request from the manufacturer, who is located at 845 Fifth St. here.

Time Saved for Patrons by Pre-Packaged, Self-Serve Meats Attracts 50% More Sales

JERSEY CITY, N. J.—Pre-packaged, self-service meats increased sales an estimated 50% and saved shoppers 90% of their time in two stores that recently completed a year-long test of this type of operation, officials of the S. W. Kagan Co., operator of 14 meat markets in New Jersey, have stated in a full report of the study.

The success of the tests has convinced the management of the chain to convert all stores to that type of operation, they indicated. The chain operates a central pre-packaging plant here to serve all of its various stores.

The Kagan stores display all types and cuts of meat and fish in cello-

Ward Refrigerator Co. Petition Asks Extension For Payment of Claims

LOS ANGELES—An arrangement under Chapter XI of the Bankruptcy Act has been requested by Ward Refrigerator & Mfg. Co. here in a petition filed in U. S. District Court here.

Ward proposes that it be allowed to remain in possession of the company's properties and continue operations and that an extension until Dec. 31, 1951 be granted upon unsecured claims.

The plant provides for payment of all unsecured claims having priority upon confirmation and for payment of all other unsecured claims as follows: one third during calendar years of 1949, 1950, and 1951.

Under the proposal the payments for 1949 would be made in three monthly instalments during October, November, and December; 1950 and 1951 payments are to be made in six monthly instalments.

Petition was entered over the signature of Harry Ward, president of the company. Firm's attorneys are Sprague and Sparks, Los Angeles. Referee is Hugh L. Dickson, Federal building, Los Angeles.

San Antonio RSES Hears Ansul Research Director

SAN ANTONIO, Tex.—Dr. Walter O. Walker, director of research, Ansul Chemical Co., spoke on "The Chemistry of Refrigeration" before the April meeting of the San Antonio Refrigeration Association Chapter of the Refrigeration Service Engineers Society.

The San Antonio group meets regularly the fourth Wednesday of each month.

Dealer Demonstrates In Booth

ALBANY, N. Y.—Economy Appliance Co., here, has opened a booth for sales demonstrations at Albany Public Market. The booth is under the direction of Harry Feder, sales manager of Economy Appliance.

Servel Begins Course on Servicing 'Supermetrics'

EVANSVILLE, Ind.—A training program designed to better acquaint commercial refrigeration servicemen with the operating features and maintenance of Servel "Supermetric" condensing units has been recently inaugurated by Servel, Inc., Electric Refrigeration Division.

A number of one-day meetings, sponsored by distributor and manufacturer customers, have been held in recent weeks in the Indiana, Illinois, Tennessee, Kentucky, Missouri, New York, Pennsylvania, Vermont, and California territories.

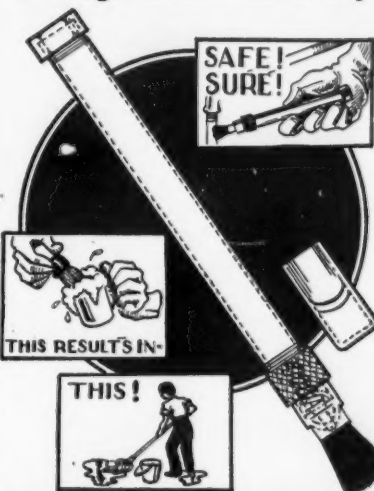
Others are being scheduled during the next two months to cover other sections of the country, according to George S. Eager, division service manager.

The service training sessions include discussions of internal construction of the Servel Supermetric, electrical characteristics, performance demonstrations, and how to select and apply the hermetic unit for the most satisfactory operation.

Servel factory representatives in charge of the meetings include Frank Jaeger, midwest service engineer, and James R. Fleming, eastern service engineer, assisted by the district managers in each territory.

Announcing!

A NEW TOOL for the Refrigeration Industry



"LEAK DETECTO BRUSH"

a safe, sure tool for detecting refrigeration gas leaks

- Won't leak
- Durable
- Easy to fill
- Will detect slightest leak
- Compact—easy to use
- Uses any soap bubble solution
- Saves additional service calls
- Saves money

Speed up your service calls and eliminate callbacks for leaks—use Detecto Brush. It reaches even the tightest places quickly and will detect even the slightest leak.

Detecto Brush embodies a precision machined valve which feeds Detecto Solution through a bristle tip when brush tip is depressed. The solution flows freely in temperatures as low as forty degrees below zero. Detecto Brush can be easily carried in the pocket.

Such a tool has long been a necessity in the refrigeration field. It has been field tested by hundreds of service men and enthusiastically approved. Write today for details. Send \$3.00 for trial brush and solution. Quantity prices will be quoted with your sample.

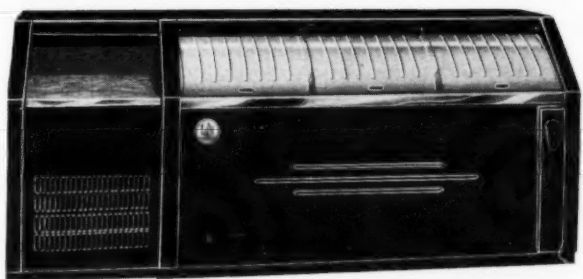
DISTRIBUTORS WANTED

Gas Appliance Stores

Incorporated

706 Harden St. Columbia, S. C.

for a COOLER future



Dry Storage Bottle Cooler with Utility Housing



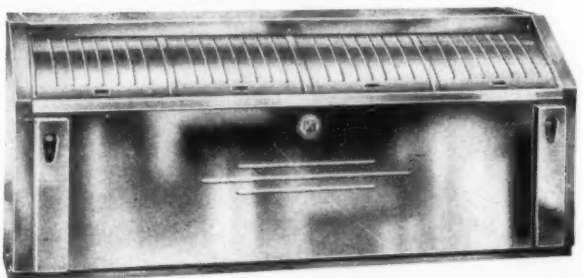
La Crosse Ice Cube Maker



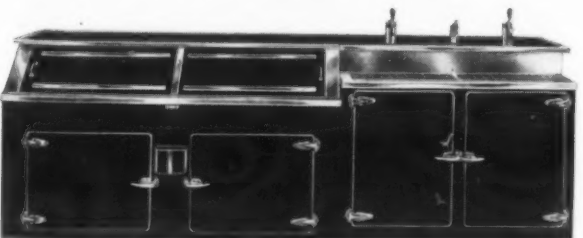
2 Keg Direct Draw



La Crosse Combination



La Crosse Bottle Cooler

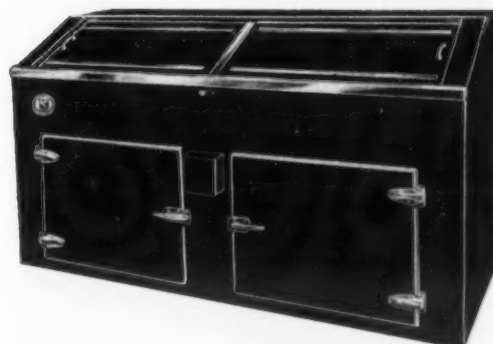


Club Special

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Give your business this Cooler Future by buying La Crosse Equipment... accepted throughout the field as the Standard Of Comparison in design, construction and service. Years of exclusive refrigeration manufacturing has given La Crosse the necessary "know-how" to guarantee Quality—Performance—Economy.

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They'll Do It Every Time By Jimmy Hatlo



Do You Have 'One Foot In the Door'?



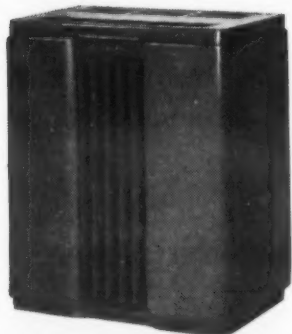
A NEW 15 cu. ft. UPRIGHT FOOD FREEZER WITH EVERY BEST-SELLING FEATURE!

Feature for feature, this new big-capacity Carrier Upright Food Freezer has everything it takes to be a best seller for you. Carrier-designed and engineered, it's a standout for styling, efficiency, economy. It stores 600 pounds—yet occupies only half the floor space of sprawling chest-type models of the same capacity!

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You can make every season profitable with Carrier's money-making dual franchise. Carrier's two new lines—the great new Food Freezer and the trail-blazing new Room Air Conditioner—mean year-round sales. Powerful promotion and advertising support both products. Write for details. Carrier Corporation, Syracuse, N. Y.



The New Carrier Room Air Conditioner

A trail-blazing new Console with more cooling per watt than any comparable unit. Concealed 2-speed control—whisper-quiet operation. 5-year warranty. Streamlined window models, too!

Carrier

AIR CONDITIONING • REFRIGERATION • INDUSTRIAL HEATING

Sell Yourself First

(Concluded from preceding page)

few things that are said during an actual demonstration are as important as the first few words to a prospective buyer. Since many air conditioning sales will be made in the home or office, rather than on the showroom floor, the selling man's opening remarks should impress the prospect that he is on hand to "serve" him instead of "sell" him.

To help establish this state of mind for the prospect, it is wise to know something about his background so that conversation will center on common ground. Arouse his interest and make him want to hear your complete story. Get the prospect to visualize and recall the discomfort he experienced during the previous summer. Your presentation of local weather bureau statistics, showing the number of days that the temperature exceeded 80° will undoubtedly help him to recollect. Once he admits that he has suffered discomfort, the prospect naturally is interested in avoiding repetition.

When the first onslaught of summer weather hits the community the dealer should be prepared to intensify his campaign. In the first place, there is nothing like a hot, sticky day to make any individual realize his need for relief. When the prospect realizes this need, and assuming that he is financially able to afford the equipment, the actual selling job is simplified.

Successful dealers actually anticipate the arrival of these uncomfortable days. As a matter of fact, many are so "weather minded" that they check forecasts as far in advance as possible. Thus, when the blast of hot weather descends upon his locality, the alert, aggressive dealer is prepared to take full advantage. He has:

- (1) His prospect lists completely organized.
- (2) He has paved the way with advertising, direct mail, telephone calls, and personal contact.
- (3) His sales force has a list of follow-up calls and the order in which they are to be made.
- (4) His selling men know their product and selling story from top to bottom and from start to finish.
- (5) They know all the answers to the questions that the prospect may ask about the product, financing, and when the unit can be installed.

Just as the blacksmith knows that his most effective work is accomplished when the "iron is hot" the alert selling man knows that his selling presentation is most effective when his prospect is perspiring, uncomfortable, and completely receptive to "conditioning."

If the prospect hasn't dropped in at the showroom prior to this time for a demonstration, nine chances out of 10 the first "summer sizzler" will find him more than willing to accept the invitation. Here, out of the sweltering heat, he can feel the cool, clean refreshing air as it leaves the conditioner. He can see how easily it can be installed. He will note how simple it operates. At this point, an order blank most certainly is in order.

However, regardless of how well sales are built, and despite the fact that the prospect may be sold on the product, there will invariably be objections by the customer which must be answered to his complete satisfaction before he signs the order.

Some of the objections raised by the customer may be real, others may be due to the natural hesitancy of anyone to part with money before they are fully convinced in their own mind, that they are doing the right thing in purchasing the product you are selling—

They want to be completely certain that the product will do the job you claim for it.

That you are giving them the best possible price.

That the product you are selling offers them more, or at least as much, for their money as any other comparable product on the market.

The successful salesman welcomes objections, because usually from them he can determine the extent of the prospect's interest in the product, and he knows that when a sincere type of objection is answered to the customer's complete satisfaction, it often leads directly to the signed order.

The smart selling man will not let his new customer simply become a "name on the books" after the signed order has been docketed. Like the miner finding his first gold nugget, the sale only serves to intensify the selling effort. Successful selling men have learned through experience that follow-up calls on their customers accomplish three important objectives: (1) Keep customers sold on the products they have purchased; (2) satisfied customers will supply leads to other prospects among their friends and neighbors; and (3) greater earnings result.

Thus, after closing the sale, the dealer should make certain that equipment is installed when promised. After installation has been completed, the selling man should follow through with a personal call to check on the operation of the equipment and answer the new customer's questions. It is wise to re-explain the operation of controls and give him any little tips on how to get the best results with the new conditioner. At the same time, it may be possible to obtain the names of a few of the customer's friends and acquaintances for your prospect list. Before you leave, make sure your new customer is completely satisfied—because satisfied customers pave the way for future sales.

In the final analysis, selling room conditioners, like any other type of specialty selling, depends upon the initiative, ingenuity, and ambition of the salesman. If a so-called selling man is content to "sit on the acorn"—he is not a true salesman. On the other hand, if he is a hard-hitting go-getter, not content to wait for the sale to come to him, his room conditioning unit sales volume may double and yes, even triple, during the course of a selling season.

DRESS UP THE SMALL STORE WITH



JR. 4 FRONT VIEW

The Coldin Jr. is a refrigerator for every small grocer, every small baker and every small delicatessen's budget!

Coldin Jr. 4 is so easy to sell, so profitable to sell. Feature the Coldin Jr. 4 in your showroom NOW!

Write for illustrated literature on complete profit selling line.

COUNTER HEIGHT 41"

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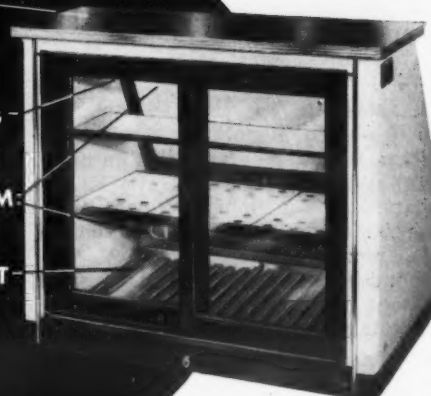
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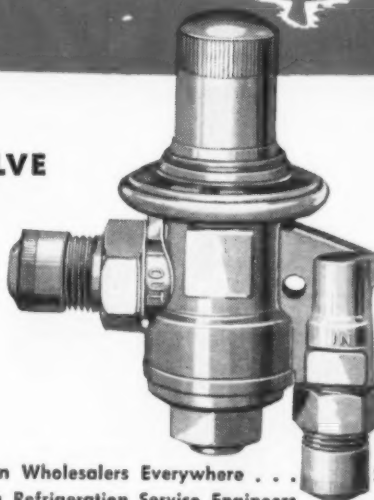


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Automatically maintains constant pressure in systems having uniform loads. Easy to install. Metal cap seals against freeze-ups, provides access to handy adjusting knob. Easy to adjust without tools. Range, 15" vacuum to 35 lbs. pressure. Capacity, up to 1 ton Freon, 1.5 tons Methyl or Sulphur.



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Proper Application of Package Air Conditioners In Theaters

Considerations Involved In Estimating and Installation Procedures Are Outlined

By Don V. Petrone, Vice President,
Typhoon Air Conditioning Co., Inc.

Theater air conditioning has gone a long way from the early days of nickelodeon movie houses when Typhoon blazed the way in 1909 with 12 and 14-ft. ventilating fans; thence continuing through washed air systems, ice air cooling, well water, central mechanical plants, and now finally, the most modern method of theater air conditioning, via self-contained free standing package units. More than three years ago, Typhoon started planning for this type system and early in 1947 the first installation was made at the Rivoli Theater, Philadelphia. Since that time hundreds of theater exhibitors have recognized and accepted this economical and easy to install method of coping with their air conditioning problems.

In most air conditioned theaters, the conditioned air is supplied by a conventional central plant, usually located in the basement, more often, however, in a penthouse on the roof or in a separate shed built only for this purpose. The conditioned air is distributed to and throughout the theater by an elaborate system of ducts, connecting to this central plant.

In the majority of cases this ductwork is installed while the theater is in construction. In existing theaters, installation of complete ductwork is costly, sometimes impractical or even impossible. However, many existing theaters which have no facilities for air condition-

ing can now be air conditioned satisfactorily at comparatively low cost by the use of self-contained floor model air conditioning units.

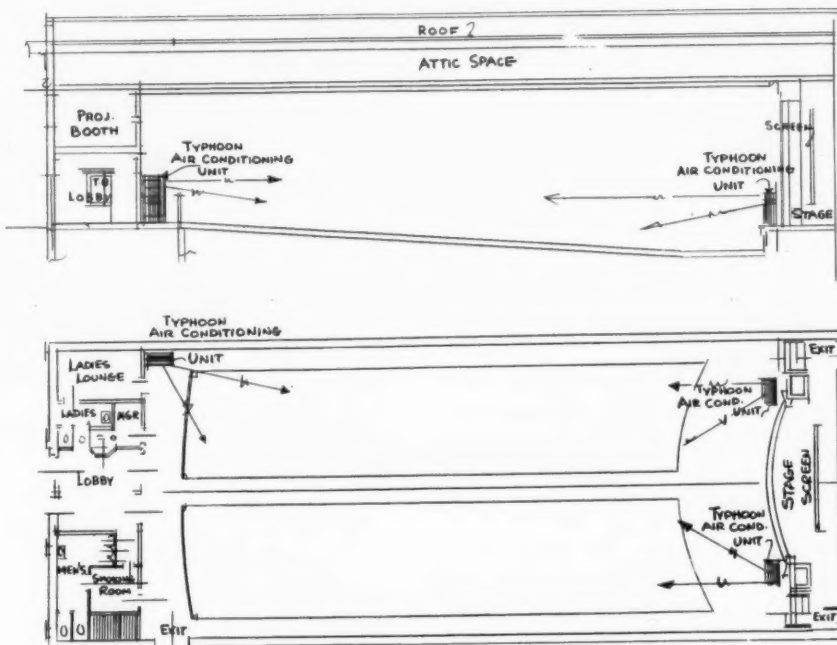
The use of these self-contained units can also result in a saving of refrigeration and, therefore, cost of operation. The reason for this saving is that the units can be installed in such a manner that the conditioned air will be distributed directly from the unit to the occupied section of the theater, or in other words, to the audience. Thus losses through ductwork will be eliminated. Areas in the theater that do not require air conditioning such as the stage, all space above the audience to ceiling, also seldom-used lounges, etc., will not be required to be cooled. A saving of 25% or more in refrigeration and in current consumption can be the result.

Distribute Air Directly

The self-contained units are distributing conditioned air directly to the occupied section. This fact will permit the theater operator to get individual zone control in his theater. This is accomplished in the following manner:

Each self-contained unit is equipped with a thermostatic control. If the section in which the unit is installed is unoccupied, the return air going back into the unit will be heated only slightly, therefore, the thermostat will control machine operation to such an extent that the unit will

Placement of the Units Important In Theater Installations



Suggested arrangement of self-contained units in a typical one-floor theatre to provide satisfactory air-conditioning. The upper left drawing shows this typical theatre in longitudinal section, with the orchestra plan shown at the lower left. Immediately below is shown the transverse section.

In this layout three 10-ton package units are used to air condition a 600-seat house; one on either side of the screen and the third at the rear right of the auditorium. In the unit setup, one, two, or three may be operated as the conditions demand. The units can be equipped with heating coils to heat the theater during winter months as well as cool, filter, dehumidify, and circulate the air in the summer.

only run for a short while to maintain a comfortable level in this section.

However, a unit located in an area that is fully or almost fully occupied will be kept in operation, as the air is continually warmed by the heat given off by persons occupying this area as the thermostat is controlling machine operation to maintain a comfortable condition.

Quietness Is Important

Self-contained units for theaters should operate at a minimum noise level. All rotating and reciprocating machinery in Typhoon units is mounted on a floating cradle which is spring mounted, preventing vibration and noise transfer. In addition, the steel cabinet enclosure is carefully covered on the interior with sound absorbing material, preventing motor or compressor hum from reaching the audience.

One of the main features in the use of self-contained units for theaters is that in the case of unit failure, the theater operator is not

confronted with a complete shutdown of his air conditioning plant. Usually, only one unit is likely to get out of order at a particular time, permitting the remaining units to take over the load. Also, if necessary, closing of a small section served by an individual unit will usually create no hardship to the operator. Easy serviceability of these units results in a shutdown period of short duration.

Self-contained units are usually designed in such a manner that they will not only give comfort to the theater patron by reducing the temperature of the air, but also and primarily by reducing the moisture content or humidity of the air. Self-contained units must be selected with large cooling coils having proper face area and are at least five, six, or even seven rows deep.

Depth of cooling coils is of paramount importance in removing latent heat, and theater cooling loads are such that cooling coils with large latent heat removal capacity are essential.

The number of units required de-

pends, of course, on the size of theater (seating capacity) and geographical location. For practical purposes the selection can be made by calculating 15 to 20 seats per ton depending on dry bulb and wet bulb design conditions of individual localities.

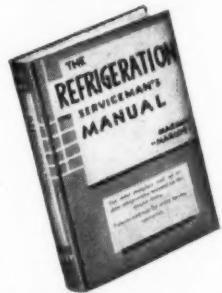
Once the tonnage is determined, the selection of sizes and number of units to be used in a theater depends on the seating arrangement and physical characteristics of the particular theater.

Placing the Conditioners

Even distribution of conditioned air is, of course, essential. The average theater is of oblong shape, in which case usually two units located at, near, or on the stage will take care of the front part of the theater.

One, two, or more units at the rear of the theater installed along the rear wall or back of the standee rail will normally take care of the rear of the theater.

Balconies must have their separate (Concluded on next page)



THE LATEST BOOK ON REFRIGERATION REPAIR

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Every repair man and owner should have this book at hand for ready reference. Written by Edward R. Magnus, a recognized authority and consulting engineer on refrigeration, the book contains 21 reference tables and 139 line illustrations. Servicing instructions follow a logical pattern in which the problem is presented, the equipment necessary is listed, general instructions follow, and the operation is completed with a short paragraph on precautions to be observed in making the repair.

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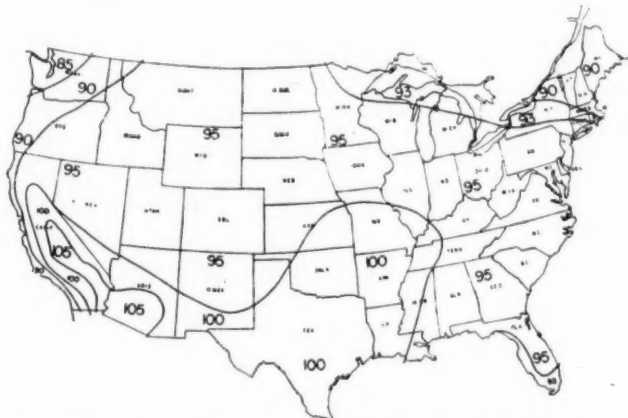
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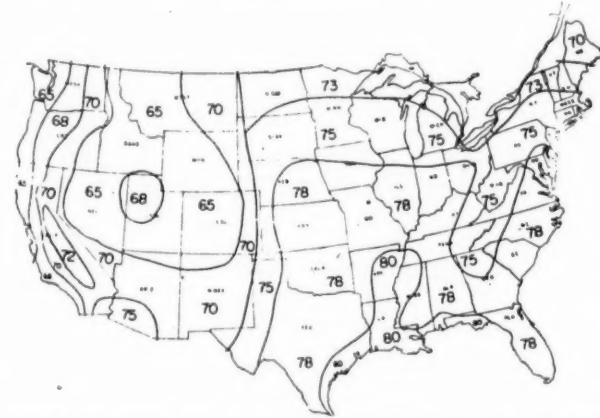
Street Address.....

City, Zone & State.....

Map Provides Data on Wet and Dry Bulb Conditions In U. S.



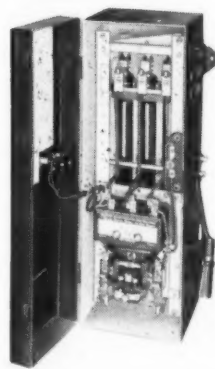
AVERAGE DRY-BULB TEMPERATURES in the United States, calculated as a basis for estimating the cooling requirements of theaters. This map, and its figures, should be used in conjunction with the adjacent map that shows comparable averages for wet-bulb temperatures throughout the country.



AVERAGE WET-BULB TEMPERATURES in the United States, calculated as a basis for estimating the cooling requirements of theaters. This map, and its figures, should be used in conjunction with the adjacent map that shows comparable averages for dry-bulb temperatures throughout the country.

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When you have a big compressor installation . . . or any job involving the starting of a heavy flywheel load . . . specify an Allen-Bradley Bulletin 640 (Manual) or Bulletin 740 (Automatic) compression resistance starter. These starters will accelerate the motor from standstill to full speed with velvet smoothness. They are easy on belts, chains, and gears, because machines are started without a jerk. Send for Bulletins 640-740. Allen-Bradley Co., 1313 S. First St., Milwaukee 4, Wis.

ALLEN-BRADLEY MOTOR CONTROLS
for Air-Conditioning and Refrigeration.
Manual & automatic across-the-line starters.
Compression-type velvet-smooth starters.
Pressure and temperature switches & controls.
Relays and contactors from 1 to 8 poles.
Push buttons and selector switches.



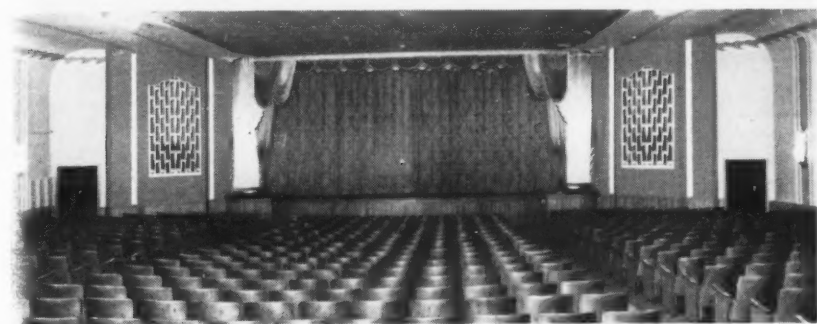
ALLEN-BRADLEY
SOLENOID MOTOR CONTROL
QUALITY

Some Say

"It's a Great Life"

How About You?

Package Units Can Be Unobtrusive In Theaters



An example of the installation of Typhoon self-contained air conditioning units is shown in these pictures of the Rivoli Theater, Philadelphia, 620 seats. From the seating capacity of the auditorium—and the locale of the theater—four 7½-ton units were deemed required for proper air conditioning: two units at the front of the auditorium, and two units in the rear.

The usual placement of the units would have set one on either side of the screen, and actually such was done in this instance even though the units are not apparent (top picture). Since this theater antedates the sound pictures era, an organ had been installed in the early days, and the masked organ pipes still installed. So the engineers decided to take advantage of the natural masking available, and they proceeded to remove the old organ pipes and to install the forward units behind the ornamental grilles.

At the rear of the theater (bottom picture) the two units are right out in the open, and, being of trim line, they become a pleasing addition to the standee area, as well as being their own best advertisements.



Air Conditioners In Theater Applications - -

(Concluded from preceding page)

units, except that a small balcony can be supplied by a duct to a unit located below it. Lobby, lounges, etc., must have their own units if air conditioning is required there.

In rare cases a small theater can be conditioned by two units only, located near the stage or on side walls of theater.

Self-contained units are attractive, but if necessary, can be refinished to conform to the interior decoration. In addition to providing summer air conditioning, these self-contained units can be equipped with simple heating coils suitable for connection to the theater's heating boilers, giving an all-year-round service, and thus eliminating unsightly and cumbersome floor-type radiators or unit heaters.

In many cases, they can also be installed in concealed spaces, as behind grilles or organ lofts, in closets, behind drapery, etc. as long as it does not impair proper air circulation.

The installation of these units only involves wiring and plumbing connections, and can be accomplished in a relatively short time. Locating units and running electrical and water lines may at first appear to be a problem, but thorough and detailed inspection of the premises will, in the majority of cases, reveal ideal locations for the units and concealed spaces for running wiring and water lines.

The advantages of self-contained

units may be summed up as follows:

1. The theater box receipts determine the number of units that operate since the units are thermostatically controlled and operate in direct proportion to the number of patrons in the house.

2. Lower initial cost and lower cost of operation.

3. No ductwork required, thereby eliminating need of cutting, patching, and redecorating in order to install an air conditioning system.

4. Flexibility in design and a means of providing zone control.

5. Saving in refrigeration by having discharge air flowing horizontally at breathing line level and not wasting refrigeration at ceiling line.

6. Units require only wiring and plumbing connections for complete installation.

7. Units can be equipped with heating coils to provide winter heating as well as perfect summer air conditioning.

8. Units can be added to a present central air conditioning plant, if additional air conditioning is required.

All of the above advantages have given the self-contained unit a well-earned place in theater air conditioning. Typhoon distributors in such cities as Philadelphia, Greensburg, Cleveland, Detroit, Baltimore, Pensacola, St. Louis, Jersey City, Milwaukee, and many others can attest to this new found and lucrative market for self-contained units.

Delavan Offers Full Line Of Crosley Compressor Parts

DES MOINES, Iowa—A complete line of replacement parts for Crosley compressors has been announced by Delavan Mfg. Co., here.

The Delavan line now includes pistons, piston pins, connecting rods, diaphragm seals, eccentrics, and eccentric shafts for Crosley compressors. Delavan has also announced a number of price reductions on these parts.

New Booklet Dramatizes Benefits of Activated Carbon Air Recovery

NEW YORK CITY—"A Dream of Green Air" is the title of a new air recovery booklet offered by W. B. Connor Engineering Corp.

It tells the story of a worried businessman who is troubled by a vision in which the conditioned air in his building becomes the color of money, all the more disturbing because much of it is being lost. It tells also how he learned what can be done to stop this economic waste.

In narrative style and with simple diagrams, the booklet explains "how much of the energy, or money, spent to cool or heat air is actually thrown away because the air has picked up a minute quantity of odors," the company said.

"It points out that an almost unbelievably small concentration of odors is sufficient to make the entire atmosphere objectionable—less than one ten-thousandth of 1% in volume is enough—and demonstrates the wastefulness of exhausting as much as more than one half of costly conditioned air just to get rid of such an infinitesimal amount of impurities."

The alternative to this extravagant practice, it is held, is "Air Recovery" by activated carbon purification. By "recovering" and recirculating air that is already at the right temperature, humidity, etc., less new unconditioned air is required and hence less conditioning capacity, the booklet maintains.

Every \$100 invested in air recovery equipment saves \$385 in the installed

cost of heating and cooling capacity, it is claimed. It is further claimed that for each \$1.00 spent annually to operate an air recovery unit, an estimated \$2.53 is required to maintain the conditioning equipment it replaces.

The booklet may be obtained by writing for Dorex Bulletin 118 to W. B. Connor Engineering Corp., 112 East 32nd St., New York City 16.

2-Stage System Conditions Denver Medical Center

DENVER—A 2-stage air conditioning system, which will provide more than 50 tons of air conditioning capacity during the hot summer months, is a feature of the new 5-story, three quarter million dollar "East Denver Medical Center" completed at 3701 E. Colfax Ave. here, during April.

Located on the fringe of one of Denver's largest residential districts, the new Medical Center incorporates offices for 60 physicians, X-ray laboratories, fluoroscopic laboratories, and special treatment rooms for respiratory diseases, all of which will require air conditioning.

On the first floor is a completely air conditioned prescription drugstore, one of the largest in the west, which also houses a telephone intercommunication system between drugstore and doctors' offices, and between various offices within the building.

The structure is built of concrete throughout, and features vertical ductwork, for even distribution of cooled air through the departments, according to the building contractors.

Frogs Can Take It If Kept Cool

CHICAGO—Frogs, given doses of X-ray many times greater than that needed to kill them, can be kept alive indefinitely as long as they remain at temperatures of 40° F., two University of Chicago scientists have discovered.

The scientists, Dr. Harvey M. Patt and Marguerite N. Swift of the biology division of a laboratory operated by the university for the Atomic Energy Commission, found that irradiated frogs kept at 75° F. died within a month.

Frogs that had been held at 40° F. even for several months would die if the temperature were raised to 75° F., they discovered.

MANUFACTURING OPPORTUNITY NEW HERMETIC UNIT

For sale or for manufacture on a royalty basis a new hermetically sealed refrigeration unit 1½, ½, and ⅓ H.P. of proven merit in the household, water cooler, low temperature ice cream cabinet and beer cooling fields. Type of construction enables low manufacturing costs. This is an efficient unit with low operating costs and with certain accessories not now on the market. Inquiries are solicited.

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FOR LOW TEMPERATURE APPLICATIONS

The continued popular demand by the refrigeration industry forced this reprint. The data book was revised to incorporate the latest available information. There are 32 pages packed with a wealth of data, including a complete explanation of the theory, operation and application of the THERMOBANK System, all useful to refrigeration engineers, servicemen and salesmen.

The Rapid Selection Tables cover 1440 individual calculations covering boxes from 5' x 4' to 25' x 25' and a temperature range of from +10°F. to -20°F. under various loading and application. Calculations were based on A.S.R.E. Standards. With these Tables you can get the BTU load and the required evaporator size without picking up a pencil.

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It's the Remington Aristocrat (model 12W). Delivers 15,000 btu/hr., handles jobs your competition can't touch, because only REMINGTON has such cooling power. Five other models, ½ to 1½ hp. AC and DC, air and water cooled, make Remington MOST COMPLETE line. Sold direct to installing distributors, giving you top profit. Write for Booklet G-2.

REMINGTON AIR CONDITIONING DIV., CORTLAND, N. Y.

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What's New

Palmer Window Unit Has 10-Gal. Water Reservoir



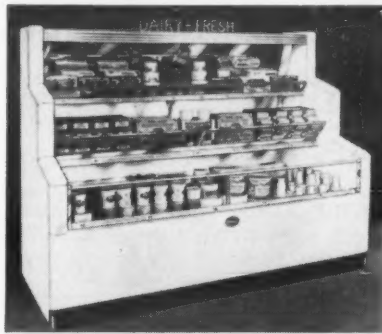
circulating pump and cooling system that permits the unit to operate approximately five hours at high speed. The unit is equipped with a removable chrome plug so that an accessory float valve kit can be installed if automatic water supply is desired.

The evaporative cooler weighs 29 lbs. and measures 24 in. wide and 23½ in. high. It sets in an open window and has adjustable side panels to close the side openings in windows up to 36 in. in width.

During the winter months, according to the company, the unit can be removed from the window and used inside the house as an indoor humidifier and heat circulator.

The all-steel, rustproofed cabinet is finished in a bronze baked enamel hammertone.

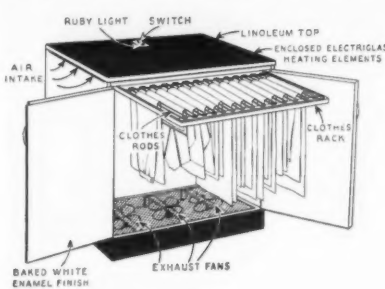
Federal Case Ends Detach For Continuous Display



Federal Mfg. Co. triple-deck case.

shelf. All shelves have glass guards and price tag moldings.

Front-Opening Clothes Dryer Uses Infrared Heat



BERGENFELD, N. J.—A new deluxe model Temprex radiant heat clothes dryer, designed to retail for \$129.50, has been introduced by the Appleman Art Glass Works, here.

This new dryer creates infrared heat and artificial breeze to dry clothes.

Housed in a fully insulated, all-steel Bonderized cabinet with white

baked enamel finish and work-table linoleum top, the Temprex dryer fits into any kitchen or laundry and takes 14 lbs. of wet wash or 8½ lbs. of dry wash. Doors open at front of cabinet for convenience in hanging clothes.

Wash is hung over removable rustproof stainless steel rods (hanging space equivalent to 40 ft. of clothes line) which slide forward out of cabinet at work height. Temprex panels mounted at top of cabinet produce radiant heat and three exhaust fans circulate air.

The new Temprex unit is designed to dry everything from handkerchiefs to washable rugs. An average laundry may be completely dried in about an hour and a half, and damp-dried ready for ironing in less than an hour, the manufacturer claims.

Dryers can be plugged into any 110-volt a.c. outlet, eliminating costly special installation. They consume approximately 1,000 watts. No bolting down is needed since the Temprex is vibration-free. The dryer measures 36 in. long, 36 in. wide, and 24 in. deep.

Temprex dryers will be made available through electric appliance distributors.



Doray Defroster Doubles As Electric Wall Clock

COLLINGSWOOD, N. J.—A household device which automatically defrosts the refrigerator and is an electric wall clock at the same time has been brought out by Doray, Inc., here.

Automatically, the Doray Defroster turns the refrigerator off at 1 a.m. each night, and then, again automatically, switches it back on after the thin skin of frost is removed from the unit.

The device is installed simply by inserting its plug into a convenient outlet, slipping the refrigerator plug into a slotted receptacle on the defroster plug and hanging the clock, housed with switch controls in a cream-colored plastic case, upon the wall nearby.

Care must be taken in setting the clock to fix the hands at the proper daylight or night hour. A day-and-night indicator, a small disc, shows black through a hole in the clock face for the 12 hours from 6 p.m. to 6 a.m. and white for the other 12 hours.

Thus if the time at setting is 9 p.m., for instance, the hands should be moved by a knobbed stem at the bottom of the case until they point correctly and the disc is black. The hands should be moved until they point properly and the disc is white if the time of the defroster setting is 9 a.m.

The Doray Defroster sells for \$15 (tax included) the company announcement indicated.

Savage Arms Frozen Food Cabinet Moves on Casters



UTICA, N. Y.—A 9-cu. ft. frozen food, double-duty merchandising cabinet has been introduced recently by Savage Arms Corp. here. The open-top unit features a superstructure with three-dimensional, color photographs of frozen foods.

Special storage space is provided beneath the selling compartment. Casters permit the unit to be moved easily.

The Fine '49 ESCO Line

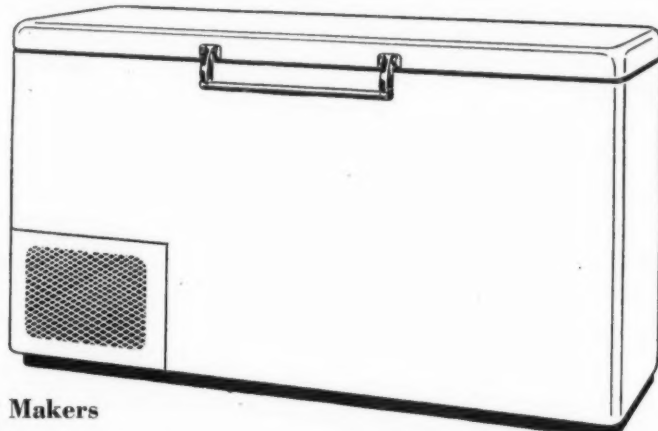
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ESCO Products have enjoyed the reputation of sturdy "BattleShip" construction for more than 20 years. This built-in quality makes the ESCO Line easier to sell.

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5 Year Food Warranty
5 Year Protection Plan



Milk Cooler Lines

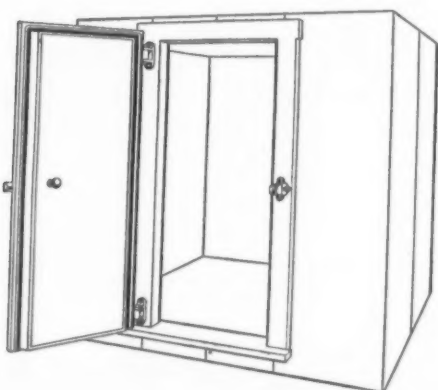
The amazing Model "AD" ESCO "NI-AG-RA" Line with its smooth "Icy-Wall" interior and exclusive patented Automatic "Neck-High" Water Leveler . . . the finest Milk Cooler made.

The exclusive Model "VD" ESCO "Icy-Wall" Line with its perfectly smooth "Icy-Wall" liner and controlled ice bank . . . no competition in this Line.

The standard Model "V" ESCO Line meets any competition . . . noted for its durable "BattleShip" construction.

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ESCO Ice Makers

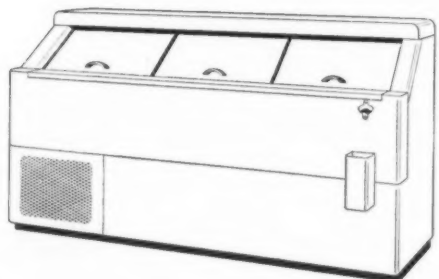
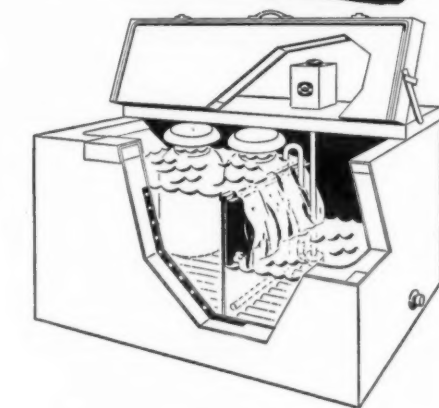
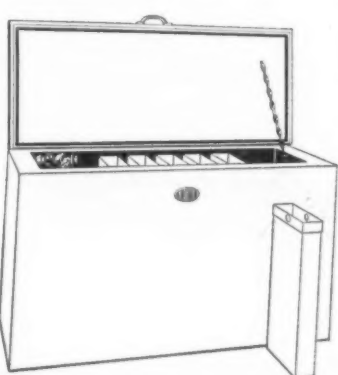
The ESCO Ice Maker Line (75 to 2000 lbs. daily) provides capacities to meet the needs of hotels, hospitals, country clubs, and restaurants of all sizes.

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Three standard Models (or to order for special sizes) provide the answer for the growing demand for easy-to-install, walk-in, cold storage facilities. Standard panel sections permit later expansion and provide flexibility.

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All ESCO Equipment packaged complete with Sealed Units carry a 5-year Protection Plan.



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40 MONTHS

of engineering, factory and field testing to develop these outstanding popular priced, compact Models. PAR RA-2 (½ H.P.) and RA-3 (¾ H.P.) are designed for either self-contained or remote applications. They give trouble-free performance, operate "quiet as a whisper." Immediate delivery so see your PAR Dealer now.

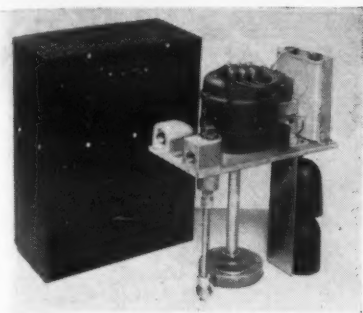
FEATURES OF THE RA-2, RA-3 MODELS

- Super quiet—compact design
- Slow speed—large capacity
- Oversize condenser
- Turbine type silent fan
- Ring type pistons—2 compression, 1 oil
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- Built in oil separator—prevents circulation of excessive oil and liquid slugging
- Extra large fine screen strainer—prevents all foreign matter from entering compressor valves
- Resilient mounted motor—built in overload protection
- New super silent valves
- Suction and discharge line valves mounted on body—head readily removable

BY COMPARISON—YOU'LL BUY PAR



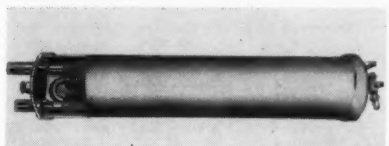
What's New (Con't)



Shell-&-Tube Condenser Can Withstand 195 p.s.i.

LANCASTER, Pa.—New shell and fin tube type water-cooled condensers for general replacement are now available to the trade from Lehigh Mfg. Co., the firm has announced.

Features given for the condensers are heavy end caps, copper-lined water taps, heavy-walled steel tub-



Dole duplex blast plate freezer.

even temperatures throughout the room, according to Dole.

Dole does not furnish the condensing unit but recommends a 3-hp. water-cooled, low temperature type. The company further recommends a back pressure control that cuts in at 0° refrigerant and cuts out at -20°. Thirty-six pounds of "Freon-12" is advised.

The refrigerant connections are 1/2 in. liquid and 1 1/2 in. suction.

Total weight of the freezer is 1,400 lbs., 1,525 lbs. when crated.

So that the freezer can be moved through a standard 6-ft. 6-in. doorway, the hoods are not attached until the unit is at its final location. Then the fan and hood section can be bolted in place.

The freezer cabinet is finished in white, air dry lacquer.

Dole Refrigerating Co. is located at 5910 N. Pulaski Rd., Chicago 30.

Eastern Industries Makes Condensate Disposal Unit

NEW HAVEN, Conn.—A new condensate disposal unit for use with air conditioning equipment has been introduced by Eastern Industries, Inc. here.

Called the model No. 2, the unit is easily adaptable to all standard air conditioning units, the manufacturer said.

It is equipped with a bronze centrifugal sump type pump and a 1 1/2 gal. brass receiver. It has a float operated switch and a check valve on the outlet side of the pump. The pump is capable of delivering about 4 1/2 g.p.m. at 0 p.s.i. pressure and has a shut off pressure of 12 1/2 p.s.i. The unit's 1/40-hp. capacitor start motor operates at 3,450 r.p.m. on single phase, 60 cycle, 115 volts.

The unit is encased in a black enamel finished sheet brass cabinet 5 1/4 in. wide, 9 3/4 in. long, and 12 1/2 in. high. It weighs 21 lbs.

Further information may be obtained from the manufacturer at 296 Elm St., New Haven.

ing, electronic welded, and continuous return bends. Liquid valves and fusible plugs are furnished with the units.

Factory tested at 195 lbs., the condensers are individually packaged and are dehydrated and sealed, Lehigh said. They have Underwriters approval.

Five models are being produced, covering application of 1/2, 3/4, 1, 1 1/2, and 2 hp.

Air Passes Through Plate Freezer Into Locker Room

CHICAGO—A duplex blast plate freezer for locker plants that will quick freeze 750 lbs. of food per day and at the same time keep a locker room at 0° F. has been introduced by Dole Refrigerating Co. here.

"This combination of blast air and conduction freezing on Dole plates is the fastest obtainable for miscellaneous packaged foods," the company has stated.

The duplex freezer stands 102 in. high, is 73 in. wide, and 30 1/2 in. deep. It contains 13 horizontal vacuum freezer plates measuring 22 by 72 by 3/4 in. The top nine are covered by two 20 by 52-in. doors while the bottom four are left exposed.

The top nine plates are used for freezing foods and are arranged so that there are three 4 1/4-in. spaces, two 5 1/4-in. spaces, one 6 1/4-in., one 7 1/4-in., and one 8 1/4-in. space. Products to be frozen may be placed directly on the plates or in baskets.

Air is drawn into the freezer across the four plates below the doors and then makes three passes over the plates from front to back and out at the top.

On top of the all-steel main section of the cabinet are two 25-in. high hoods enclosing two 16-in. diameter, 1,600 c.f.m. fans. These fans, operated by an air temperature switch which starts them at 2° F. and shuts them off at -2° F., draw the air through the cabinet and then discharge it into the locker room. Their 25-ft. air throw assures



Dole duplex blast plate freezer.

even temperatures throughout the room, according to Dole.

Dole does not furnish the condensing unit but recommends a 3-hp. water-cooled, low temperature type. The company further recommends a back pressure control that cuts in at 0° refrigerant and cuts out at -20°. Thirty-six pounds of "Freon-12" is advised.

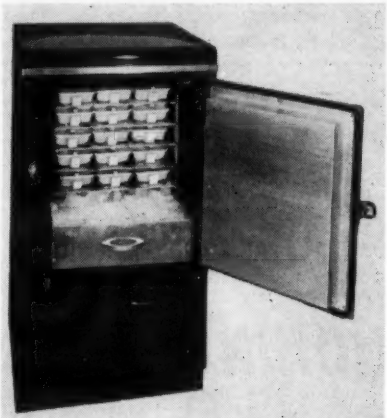
The refrigerant connections are 1/2 in. liquid and 1 1/2 in. suction.

Total weight of the freezer is 1,400 lbs., 1,525 lbs. when crated.

So that the freezer can be moved through a standard 6-ft. 6-in. doorway, the hoods are not attached until the unit is at its final location. Then the fan and hood section can be bolted in place.

The freezer cabinet is finished in white, air dry lacquer.

Dole Refrigerating Co. is located at 5910 N. Pulaski Rd., Chicago 30.



Dole duplex blast plate freezer.

Utica Sheet Corp.'s Ice Cuber Will Fit Under Bar

WHITESBORO, N. Y.—A new ice cube maker designed to fit under the standard bar has been introduced by the Utica Sheet Metal Corp. here.

The self-contained unit is operated by a semi-hermetic compressor and will freeze 50 lbs. of ice in three hours, according to the company. It contains 15 shucker type ice cube trays which hold 25 lbs. of ice and a storage pan that will hold 25 lbs.

The cabinet is finished in two-tone brown with stainless steel trim.

The machine carries a money back guarantee and is available for immediate delivery, f.o.b. Utica, N. Y.

Dealers!

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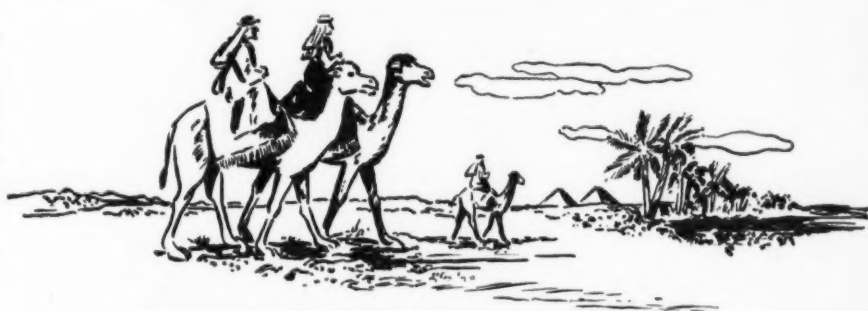


This amazingly efficient, wide open at the top frozen food or ice cream display cabinet holds sub-zero temperatures everywhere in the cabinet (laboratory tests have proved it to hold -9° in a 110° room!).

For Further Information Write

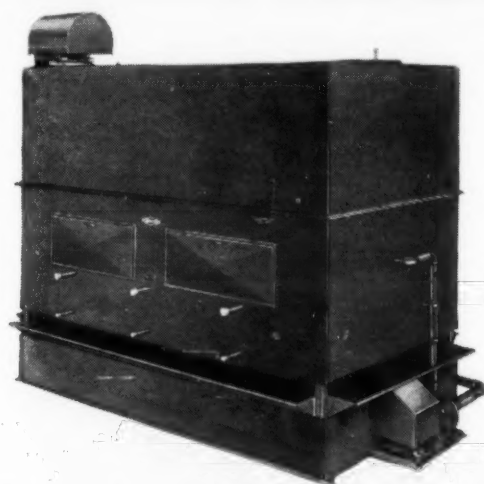
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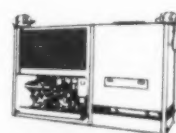
If you think a camel goes a long way on a little water... then you should see this Governair Evaporative Condenser operate! Save up to 95% of water normally used by water-wasting type condensers! Eliminate waste-water disposal problems and pumping costs, too. Engineered to give maximum efficiency and performance at a minimum cost.

Choose a Governair Evaporative Condenser, and forget those water problems!

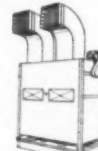
Governair Evaporative Condensers are also furnished as an integral part of universally acclaimed Governair Packaged Air Conditioners.



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TERRITORIES OPEN

Keen Knowledge of Structure, Performance of Motor Relays, Protectors Needed for Servicing

By J. A. Bagnall, Field Engineer, Spencer Thermostat Div.

The experience of the author in the refrigeration field has been largely confined to the application of starting relays and motor protectors to original equipment. Service problems, as reported by the manufacturer's service departments, have been negligible and, consequently, first-hand experience of service problems is very limited.

There are well over two million refrigeration units actually in service using Klixon devices, some of which have been in use for more than eight years. This is testimony of the dependable performance one may expect. However, as more millions of these devices reach the field and as they become older in service, it can be expected that the service requirements will become more active. In anticipation of this we are anxious to make available to the service engineers a more complete understanding of the problems they may encounter.

In order to properly service any unit the service engineer should know the details of structure, performance, selection, and service requirements. With this sort of knowledge the service engineer can approach such problems as arise with confidence in his ability to properly diagnose the trouble and apply the necessary corrective measures.

It is the author's intention to supply this basic information rather than try to give detailed service

instructions. As our experience in actual field service enlarges we may be able, at a later date, to give more detailed information as to specific problems, their symptoms, and their correction.

Of recent date there has been an increasing demand from service shops to substitute this more modern means of motor starting and motor protection on units not originally supplied in this manner. While it would be

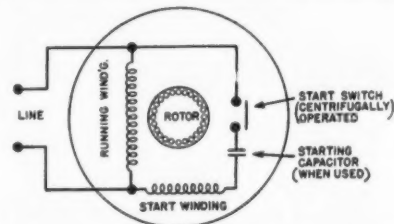


Fig. 1—Start winding provides starting torque. Once rotor has sufficient speed, running winding takes over.

desirable from many points of view to supply Klixon devices for this replacement market, the problems of application are such as to make it virtually impossible.

This statement will fully clarify itself as we progress to the detailed study of these devices and the application problems involved. We shall see that the testing time required will make it entirely uneconomic

when only one or a few motors are involved. The average service shop is, generally, not equipped with the complete assortment of precision meters, potentiometers, bridges, and hot rooms necessary for this type of testing.

On the other hand the manufacturer of the refrigeration unit generally has the necessary equipment and testing time becomes economical because of large volume production runs of duplicate units. Thus, for the time being, at least, we must remain content to see these devices come through on new units and forego any attempt at substitution on units not originally equipped in this manner.

Perhaps the principal reason this problem of substitution has arisen is because the term "relay" is commonly used to mean a combination starting relay and motor over-current protector which is located remote from the motor. It is natural then for the service shop to surmise that a Klixon starting relay also includes the protective device, but the Klixon starting relay and inherent motor protector are separate and distinct devices each serving its own specialized purpose.

The inherent motor protection thermostat is mounted on the dome of the refrigeration unit and is influenced by both dome temperature and motor current, and, hence, must be applied in a manner totally different

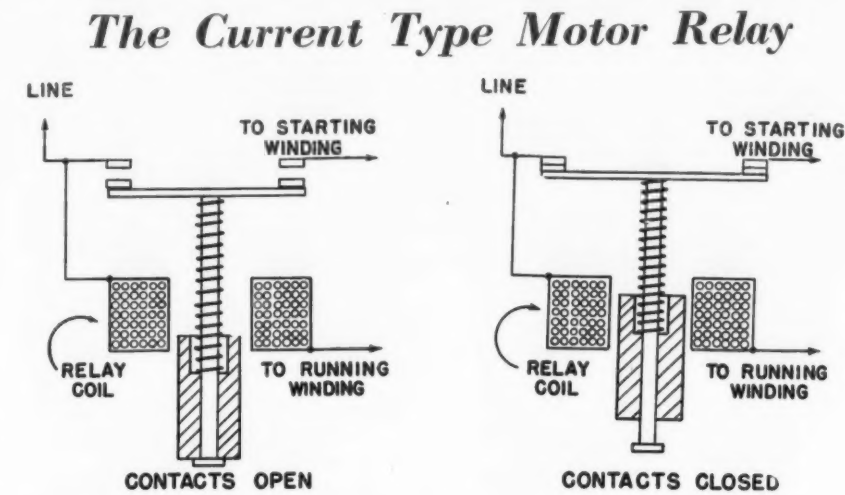


Fig. 2 (ABOVE)—Structural details of a current-operated magnetic starting relay.

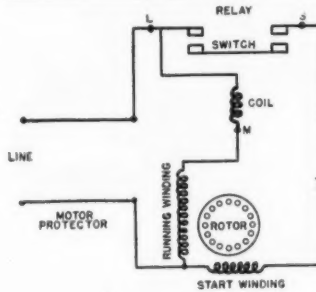


Fig. 3 (LEFT)—Same type relay connected to motor windings.

than that required of the remotely mounted protector which depends wholly upon motor current for its operation. Consequently, substitution involves considerable testing to determine the different requirements of a protector mounted on the dome as compared with a protector mounted some distance from the dome.

The starting relay is usually mounted to the same bracket that holds the protector to the dome. This is not necessary for the successful operation of the starting relay and is done in this way merely for convenience in electrical connections.

In order to keep this paper brief and not omit essential details, the discussion which follows will be confined to the application of Klixon devices to fractional horsepower hermetic motors of the split-phase or capacitor-start types.

Part I

The Current-Operated Magnetic Starting Relay

For any clear concept of the operation of this type of relay, we must first study certain characteristics of

the motors with which they are to be used.

A split-phase or capacitor-start motor is designed with two separate windings, one of which is called the running winding and the other the start winding. The start winding is needed simply to provide the necessary starting torque to bring the rotor up to speed after which this winding is de-energized and the motor runs on the running winding alone. This is shown diagrammatically in Fig. 1.

This figure shows the motor in running condition with centrifugal switch to the start winding open. At the instant of start, this switch is closed which means that both windings are energized and the motor will develop its starting torque, and, hence, gain speed rapidly. At about 75% to 80% of synchronous speed this switch opens under the influence of centrifugal force and permits the motor to continue to run on the running winding alone.

It is detrimental to efficient motor operation to allow the start winding to remain energized while the motor is running at normal speed. The

(Continued on next page)

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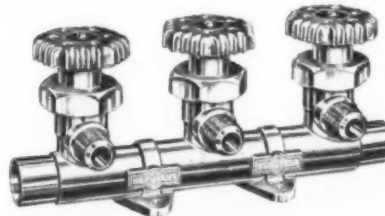
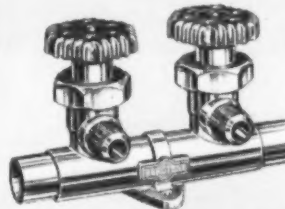
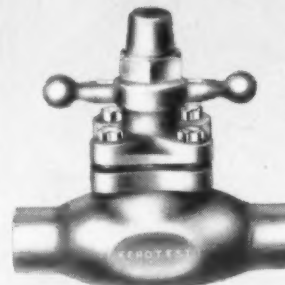
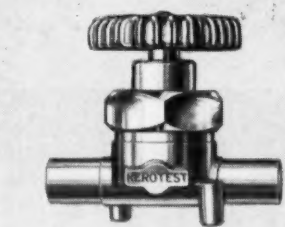
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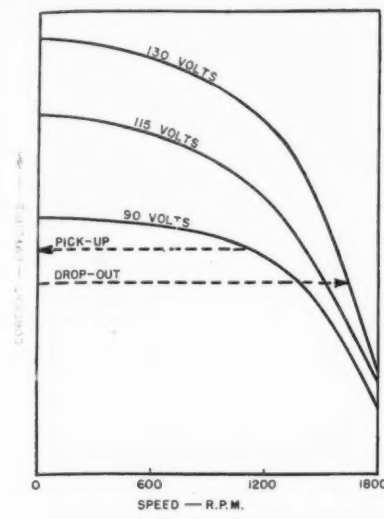


Fig. 3 shows the relay as connected to the motor windings. It will be noted that the relay coil is connected in series with the running winding and the switch is connected in series with the start winding.

When the running winding is energized, the rotor is at zero speed and the current through the relay coil is relatively high, causing the relay to

Fig. 4 (LEFT)—Chart shows how current in running winding varies according to voltage used.

pick up and energize the start winding which permits the rotor to gain speed. As the rotor comes up to speed the current through the relay coil becomes less and at some point prior to full-load speed this current becomes low enough to permit the relay to drop out, thereby removing the start winding from the circuit and the motor continues to run on the running winding alone.

We have seen that the running winding current changes with speed but to further complicate the problem there is an additional change with variations in voltage. Consequently, we must consider not only speed but voltage as well in selecting a relay rating for a given motor.

To illustrate this, refer to Fig. 4. This shows the current characteristics of the running winding versus speed for three different voltages. While this curve is typical it may vary considerably from similar curves applying to different motors. The pick-up current is selected from these curves at the zero speed line at a point not to exceed the intersection of the lowest voltage curve. This assures proper pick-up at any voltage at or higher than this point. Some additional allowance in this pick-up value is made to accommodate variations in motors made to the same specifications.

The drop-out current is selected from the curve of highest voltage at some point at which the pull-in torque is satisfactory. With these two values established, the relay should properly pick-up and drop-out within the voltage range for which it was selected. These two points are indicated by arrows in the figure.

After the relay rating has been selected on the basis of this curve data, it is necessary to run a performance test using a relay having the selected characteristics. These tests determine the following:

1. That the relay will pick up at a reasonably low voltage—90 volts is commonly used.
2. That the relay will drop out at a reasonably high voltage—130 volts is commonly used.
3. That at low voltage when the drop-out occurs lower in the speed range that the torque developed by the running winding alone is great enough to accelerate the load to full speed without the help of the start winding.

When this has been done we have a properly rated relay for that motor design only. Other designs of motors, even of the same horsepower rating, may require a different relay rating because of differences in the winding and stacking. Hence, each different motor design, irrespective of similarity in motor nameplate data, must be fully checked to be sure the relay selected for use with it functions successfully over a reasonable variation in voltage.

From the field service point of view about all that can be done is to deter-

Protector Cross-Section

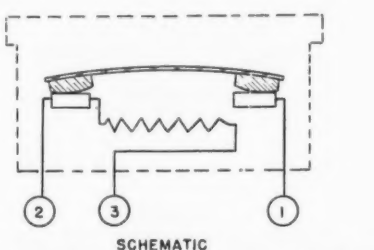
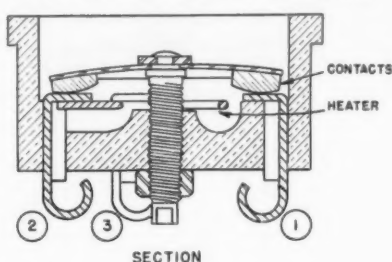


Fig. 5—Cross-section drawing of Klaxon motor protector.

mine whether the relay is or is not properly functioning. If it is found that it is not, no service can be rendered other than to replace the relay with a new one of exactly the same type and rating.

The determination of whether a relay is at fault or not is best done by substituting a new duplicate relay in place of the one suspected of giving trouble. If the trouble clears up, then it may be assumed that the relay was at fault. If the trouble does not clear up, it is necessary to look elsewhere. Some of the points to look for are shown in the accompanying chart.

The tabulation of troubles to look for is not based on actual field service complaints, but rather from what

may logically cause trouble under the conditions listed. Each refrigerator manufacturer issues instruction bulletins which give detailed explanation of the service procedure to follow in the event of trouble.

Part II

The Inherent Motor Protection Thermostat

Inherent motor protection means that the protective device is mounted as an integral part of the motor or compressor hermetic housing so as to obtain the maximum influence of the heat developed in the motor. The dictionary definition describes the word "inherent" as "permanently existing as an attribute in something, belonging by nature, inseparable." It is in this sense that we use the word "inherent" to define what is often called "dome-mounted motor protection." Inherent is a general term applying to open as well as hermetic motors, whereas "dome mounting" applies specifically to hermetic motors.

It is somewhat simpler to explain the application of inherent motor

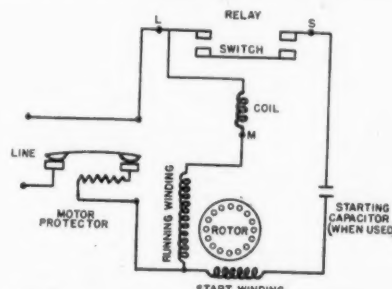


Fig. 6—How motor protector connects to motor windings.

Protector Fitted to Motor

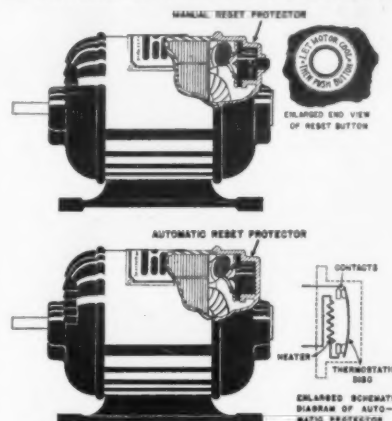


Fig. 7—How an inherent protector is applied to open motor.

protection to open motors than to hermetic motors. The fundamental principles are alike but in dome mounting there are additional factors to be considered, such as suction pressure and heat of compression, which tend towards complication. Consequently, it is best to give the explanation as applied to open motors first.

A cross-sectional view of the Klaxon inherent motor protection thermostat is shown in Fig. 5. It consists of a thermally responsive snap-acting disc, a series heater, contacts, housing, disc supporting screw, and terminals. Each of these parts must be carefully designed to give the required current rupturing capacity, tripping temperature, reset temperature, resistance, and life.

It is evident that in spite of its mechanical simplicity it is a precision device. Without the necessary "know-

(Continued on next page)

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'Diagnosis' Chart Helps Locate Relay Fault

Cause	Symptom
1. High Voltage	Motor running, relay fails to drop out, current high, noise excessive.
2. Low Voltage	Motor not running, relay fails to pick up, or motor running has insufficient torque to pull up to speed.
3. Tight Compressor	Relay fails to drop out or hunts back and forth between pick-up and drop-out with motor running. Insufficient torque developed by running winding alone to maintain running speed.
4. Open Circuit.	Motor fails to run.
a. Line fuse blown.	
b. Motor protector open.	
c. Temperature control thermostat open.	
d. Wiring or connections defective.	
e. Motor winding open.	
5. High Head Pressure.	Relay picks up but motor torque not great enough to come up to speed.

Protector Must Allow Motor To Operate At Full Capacity Without Burning Out

(Continued from preceding page)
how," precision instruments, and tools, it is totally impossible to correct any protector defects in the course of field service.

As a matter of field service, all that can be done is to determine whether the device is or is not defective and to replace those suspected of being defective with a new one of exactly the same type and rating. The only time in which a different rating may be used for field service is upon the recommendation of the refrigerator manufacturer to include changes which have been made to improve performance.

For this reason it is preferable that all replacement protectors be obtained from the refrigerator manufacturer's service stocks. The complete protector type number and that of the refrigeration unit on which it is used should be given to assure proper replacement of a defective protector.

Fig. 6 shows an inherent protector as connected to the motor windings. This connection applies to single-voltage, split-phase or capacity-start motors which are most commonly used in hermetic units. It should be noted that the current drawn by both windings passes through the heater and the thermal disc. When the contacts open the circuit all current to the motor is disconnected.

Fig. 7 shows an inherent protector as applied to a typical open motor. Special mounting provision must be made in the end bell to hold the

protector securely in close contact with the motor frame and also to maintain proper clearance between its terminals and the end turns of the windings.

When the protector is mounted as an inherent part of the motor as shown and with the motor current passing through it, the thermal element is influenced by the temperature of the motor, the current passing through it, and the heat transferred to it by the series heater.

DIFFERENT FUNCTION OF REMOTE, INHERENT TYPE

From the above, it is clear that there is a considerable difference between inherent motor protection and remote motor protection. Remote protection is distinguished by being mounted at some distance from the motor where it can be influenced only by the motor current and the air temperature surrounding it.

At this point it is desirable to briefly discuss the ideals striven for in all forms of motor protection and compare the results obtained with the inherent protector and the remote protector as applied to hermetic motors.

From a performance point of view the ideal motor protector will accomplish two objectives, as follows:

1. Limit the motor hot-spot temperature to a pre-selected safe value no matter what causes the hot spot to attain this temperature.
2. Allow the motor to work to its full available capacity.

These two factors bear a close relationship in that the higher the allowable hot-spot temperature is set, the greater is the available capacity to do work. However, if the protector shuts the motor down before this limit of temperature is reached, a sacrifice in capacity is made. On the other hand, if the limit of temperature that may be reached is higher than safe values in order to obtain capacity, we have sacrificed motor life.

IDEAL PROTECTOR PERMITS FULL CAPACITY OPERATION

Hence, the ideal protector considers both of these factors and permits full capacity up to but not exceeding the selected limit of safe hot-spot temperature. To illustrate this balance of protection versus capacity to do work with an inherent protector as compared with a remote protector, refer to Fig. 8.

The curves plotted in this figure were taken from an actual test run using a standard refrigerator. The curves are plotted against motor-winding temperature and normal percentage variation of a given rating as a result of manufacturing tolerance.

The area at the top represents unsafe motor temperatures. The middle area represents the temperatures required for both safe operation and capacity of the motor to do a good job of refrigeration. The area at the bottom represents safe motor temperatures but insufficient motor capacity.

It will be noted that the temperature curve of the inherent protector falls wholly within the safe temperature full capacity area for its total spread of manufacturing tolerance. The curve of the remote protector

How 2 Types of Protectors Perform

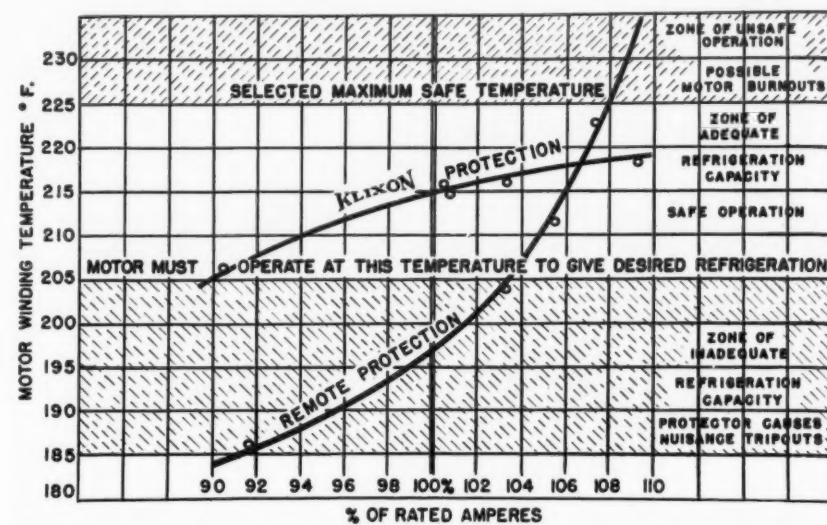


Fig. 8—Chart taken from actual test run of a standard refrigerator contrasts ranges of inherent and remote motor protectors. Note temperature difference when each type of protector has permitted motor to attain maximum capacity.

passes through this black area for only a small part of its spread of manufacturing tolerance and for the balance of its spread allows either unsafe temperatures or insufficient motor capacity.

Thus, in order for a remote protector to allow sufficient motor capacity at the low end of this tolerance spread it is necessary to increase its rating which permits still higher temperatures at the high end of the tolerance spread.

The importance of making available the full capacity of a hermetic motor to do work is emphasized during pull down and ice freeze when the load is high. The inherent protector permits this heavy load during periods when the motor temperature can safely carry this load and will not shut the motor down until the limit of safe temperature has been reached.

In this manner the inherent protector sets a definite ceiling to the temperature that may be attained and at the same time allows the motor to carry high current loads, such as pull down, for periods of time that combine with motor temperature to produce safe winding temperatures.

To understand how the inherent protector accomplishes these objectives, refer to Fig. 9. The protector is an inherent part of the motor; hence, heats and cools at the same rate as does the motor for all slow

temperature changes. When the motor is cold the protector is cold and will allow considerable overloads until the motor as a whole heats sufficiently to cause the protector to trip at some combination of motor temperature and overload current.

INHERENT TYPE ANTICIPATES

If the motor is already hot, the protector also is at this temperature and will allow less overload to be carried than would be the case at lower temperature. In this manner the inherent protector anticipates the variation in the overload current the motor may be allowed to carry in accordance with the ability of the motor to stand this overload without overheating. In the case of pull down for example, the motor has been idle for some period of time, and, hence, is cool.

When started, the suction pressure increases and imposes a heavy overload on the motor. Since the motor and protector are relatively cool, the protector will pass this current without interruption. If, however, the cabinet does not pull down such as might occur with the door open, the overload will continue until the motor becomes very hot.

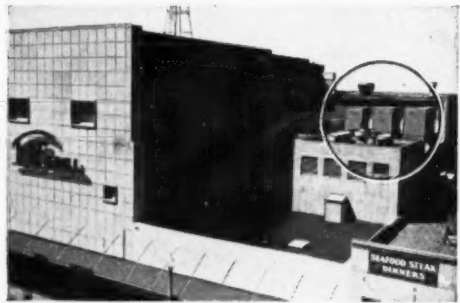
Since the protector is also becoming hot it will finally reach a point in the combination of temperature and current which will cause it to trip, thereby preventing the motor

(Concluded on next page)

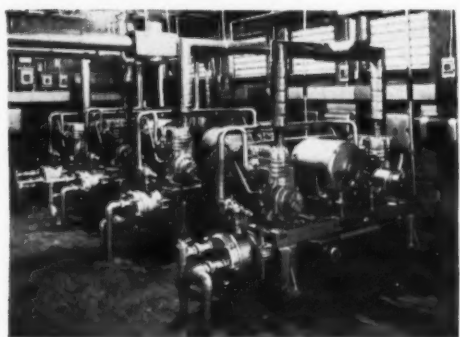
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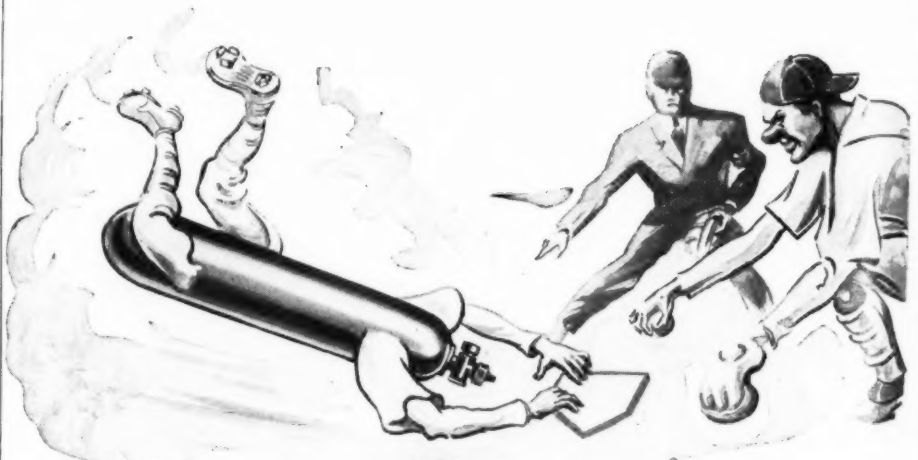
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Three Marlo Cooling Towers like that above can be seen on the roof of the Turf Club at Galveston, Texas with interior scene shown of air-conditioned area. Compressor room view of Frigidaire units served by Marlo Cooling Towers.

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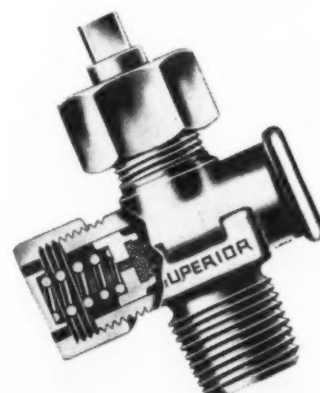
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Question & Answer Session:

Supply Problem Cited In Replacing Relays, Protectors

When J. A. Bagnall, field engineer for the Spencer Thermostat Div., completed the accompanying talk before the Greater Detroit Chapter of the Refrigeration Service Engineers Society recently, a number of questions came up, chiefly regarding replacement parts. Asked one member:

"What chance has the average serviceman in making replacements in the field? Do you have a supply of these motor starting relays and protection thermostats in parts wholesalers' stocks?"

"We recommend that you obtain replacements from the manufacturer of the refrigerator," Bagnall replied. "He may have changed his ratings, etc., so you wouldn't be sure of ob-

taining the proper thermostat from another source."

"But suppose," countered this member, "a freezer goes down and it is filled with food. The food might spoil before the unit was repaired. Suppose also this serviceman is 30 miles away or more. What's he supposed to do then?"

"This is a problem we want to solve," Bagnall admitted.

Said another RSES member: "Our men would probably wire around the device. Why couldn't a parts wholesaler stock the parts?"

"There are so many of them that after two months a wholesaler would probably say 'to hell with it,'" explained the representative of a condensing unit manufacturer.

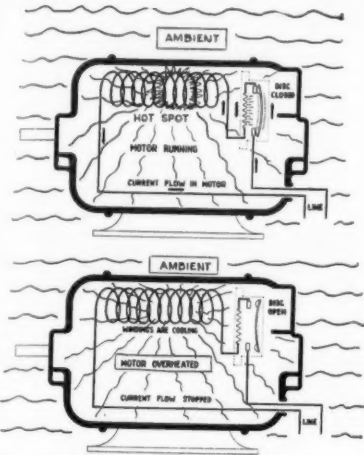
"We've never heard of any trouble with our product," Bagnall then commented.

"Maybe that's because the servicemen wire around them," suggested one member—with an obvious twinkle in his eye.

"I've tried to show you what's involved to get the best motor protection with the best motor efficiency. You have to have a specific protector for a specific application. I don't believe," Bagnall emphasized, "in wiring out a protector. It's too dangerous."

"Motor winding temperatures are being run hotter and hotter today, also. They're not too far from the limit, so there'll be trouble if you let it get away from you."

Selecting Properly-Rated Protector for Hermetic Unit Requires Careful Testing



herent protection to hermetic motors we find complications not applicable to open motors.

In some hermetic units the motor stator is pressed into the dome which provides a direct all-metal path for the transfer of heat from the winding to the protector location. In other

Fig. 9 (LEFT)—Diagrams show how inherent protector heats and cools at same rate as motor for slow temperature changes.

cases the motor is internally sprung, and it is necessary to depend upon radiation and convection through the refrigerant vapor to transfer the heat generated in the winding to the protector location on the external surface of the dome.

To further complicate the possible variations there are high-side domes which involve heat of compression as well as motor temperature and low-side domes in which the vapor density at suction pressure is a strong influencing factor.

PROTECTOR COVER REDUCES OUTSIDE INFLUENCES

Fig. 10 shows an inherent protector as applied to the dome of a hermetic unit with a pressed-in stator. A cover is placed over the protector to make the temperature association with the dome as intimate as possible.

With all the variations involved as to mounting, pressed-in stators, internally-sprung stators, high-side domes, low-side domes, temperature limitation, and motor capacity to do work, considerable testing must be done in order to select a protector rating which will provide proper protection for any given hermetic unit. A brief outline of the testing required may be of interest.

Temperature must be measured at the following points:

1. Dome under the protector.
2. Air under cover surrounding the protector.
3. Air surrounding the entire unit.
4. Main winding.
5. Start winding.

The best means of determining these temperatures is by means of thermocouples, using small diameter wire. In addition, the winding temperatures should be double checked by means of the resistance-rise method, using an accurate bridge. In addition to temperature measurement, provision must be made to measure voltage and current. When this equipment is set up in a hot room held usually at 110° F., we are ready to run the test.

SEVERAL READINGS NECESSARY

The test is run to find the continuous current which will just cause the running winding temperature to reach the selected limit of safe temperature. In doing this testing, several sets of readings will be taken at various overloads until the final one is reached.

After this is done the rotor is locked so that it cannot turn and tests run with rated voltage applied to the motor to determine the time required to raise the temperature of the start winding from room temperature to the limit of safe temperature. Again readings are taken of all temperatures, voltage, and current so as to have a complete record.

With this data a protector rating may be selected for trial. This trial run may be made in conjunction with

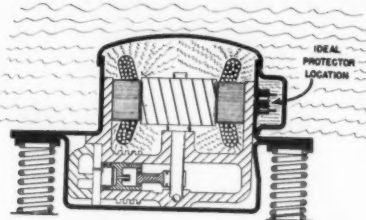


Fig. 10—When applied to hermetic units, the inherent protector must operate in closest possible conjunction with the dome.

a performance run to assure proper operation as follows:

1. That the unit will pull down successfully.
2. That the unit will freeze ice satisfactorily from both a quantity and time standpoint.
3. That the protector will trip at or close to the pre-selected temperature limit under stable temperature conditions.
4. That at locked rotor the protection is adequate and that the motor will be allowed sufficient time to accelerate to full speed.

When an application has been made in this manner it is assured that the protection is adequate and the performance of the unit will be entirely satisfactory. It is obvious that this work cannot be done as a part of field service, and, hence, the wisdom of making exact replacement of defective protectors with new ones supplied by the manufacturer of the refrigerator.

Joe Wheeler Takes Over N. Y. Branch for Johnson Service Co.

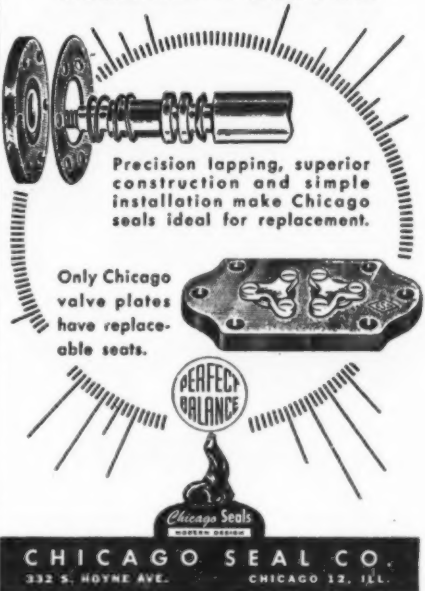
NEW YORK CITY—Johnson Service Co., manufacturer, engineer, and contractor of automatic temperature and air conditioning control systems, has named Joe Wheeler, Jr., manager of the firm's New York branch.

Wheeler has been with the Johnson Service Co. since 1931 and came to the New York office in 1935.

The New York branch is one of 11 east coast branch offices, comprising the eastern district.

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have set up—and makes them easy to remember by associating these principles with humorous anecdotes. It vigorously points up the job ahead for sales management—tells what, where, why, when, and how.

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| 1. "This Is a Funny Book" | 12. "It Pays for Itself" |
| 2. The Old Master—and How He Got That Way | 13. Ask the Man Who Uses One |
| 3. Making Direct-Mail Advertising Respectable | 14. Everybody Loves a Convention |
| 4. Hair Grows on a Billiard Ball | 15. Sales Training Schools Must Be Clever and Entertaining |
| 5. Publicity Isn't Always Free | 16. Circuit Riding Becomes a Profession |
| 6. People See Better Than They Hear | 17. Make It Clear, Make It Simple, Make It Direct |
| 7. How to Humanize Your Company | 18. Just a Minute, Dear |
| 8. Tom Thumb Cartels | 19. Five Will Get You Ten |
| 9. Finding the Rainbow's Pot-of-Gold | 20. Mama Can Help, Too |
| 10. There's Always One Best Way to Tell Your Story | 21. Ask the Man Who Does the Work |
| 11. You Can't Get Off First Base Without a Sales Manual | 22. Factory Open House Policy |
| | 23. Who Says You Can't Sell Abroad? |
| | 24. "Tell All" Promotion Rings the Bell |

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Box 3174, Air Conditioning & Refrigeration News

'Push-Button' Output System Seen by Group of Naval Officers In Tour of York

YORK, Pa.—A group of Naval officers from the Postgraduate School of the U. S. Naval Academy in Annapolis, accompanied by officers from the Bureau of Ships in Washington, D. C., and the Naval Ordnance Plant in York, inspected the plants of the York Corp. recently.

The group from Annapolis was headed by Capt. J. M. L. Wright, executive officer of the Postgraduate School, and included Capt. E. K. Walker, Profs. E. K. Gatcombe and G. D. Marshall, S. Hoffman, and 12 student officers comprising the general ordnance engineering group of the U. S. Naval Academy Postgraduate School. Also present were Comdr. W. R. Miller representing the U. S. Bureau of Ships, and Capt. E. C. Rook, commanding officer, and Comdr. R. H. Crane, executive officer of the Naval Ordnance Plant in York. The guests were greeted by Vice

President Marshall Munce who told them about the corporation, its history and development, and placed its facilities at the disposal of the student group.

Following a presentation by means of models of the production flow through the plants, a guided tour through selected shops effectively demonstrated to the visitors how Yorkco's "push-button" factory gives straight-line, high-volume production. The visitors also saw the Grantley plants in which the hermetically-sealed condensing units and the room air conditioning units are built.

A tour of the West York plants began with the development department and test plant, and included the welding shop, the erection floors, and the machine shops, where the officers were able to inspect at first hand the methods and procedures employed in building some of the largest refrig-

erating and air conditioning equipment in the world.

The group, consisting of four lieutenants and eight lieutenant commanders, ended their tour at the York Institute of Refrigeration and Air Conditioning, where C. J. Brillinger, director of the institute, explained the various training activities including management training; the college graduate training, which is an 18-month course; the five-year Penn State cooperative course; the six weeks application engineering course; the six-week service training course; spot training and special courses for particular needs.

Nebraska Utility Retains Frozen Food Demonstrator

LINCOLN, Neb.—Miss M. Thelma Bly, has been retained as home service director for the Central Electric & Gas Co. where her duties will include food preparation, cooking, and frozen food demonstrations.

She will also cooperate in educational and dealer programs on home appliances, kitchen planning, and assist the homemaker with individual problems in her home.

Miss Bly will supervise the entire home service department of the company which serves 42 Nebraska and South Dakota towns with natural gas, and 47 South Dakota towns with electricity.

She was formerly associated with Wisconsin Power & Light Co. in the home service department. In 1944 she received an award from *McCall's* magazine for outstanding achievement in the home service gas division.

Union Pacific Commissary



C. R. Van Dusen, commissary superintendent, checks on Union Pacific's four locker rooms in Denver.

New Denver Locker Rooms Supply Trains with Food

DENVER—Four refrigerated locker rooms capable of holding three or four days supply of emergency rations have been built into the newest Union Pacific commissary recently opened here.

The commissary, claimed by the management to be a model of operating efficiency, is the fifth to be opened by the railroad. Others are located in Omaha; Ogden, Utah; Los Angeles; and Portland, Ore. The purpose of these commissaries is to supply diners on the company's trains.

The Denver commissary is located at 2020 Wewatta St. near the union station and adjacent to the railroad tracks. A one-story building 140 ft. long by 48 ft. wide, it is divided into storeroom and general office.

The storeroom contains the four refrigerated lockers and a refrigeration machinery room in addition to other facilities.

The lockers are a 15 by 14-ft. meat and fish room, a 15 by 12-ft. vegetable and fruit room, a 15 by 9½-ft. dry locker for dairy products, and a 15 by 8-ft. low temperature room for frozen foods and meats.

Perishables are purchased locally and issued to dining cars daily, it was explained. About 4 tons of food-stuffs are issued daily.

Appliance Operation Cost, Kitchen Layout Explained To Farmers In Catalog

BRIDGEPORT, Conn.—An 88-page catalog describing General Electric products for the farm and farm-home has been published by G-E and is available at 10 cents a copy.

The first postwar edition of the catalog that was formerly issued annually, the publication covers all the farm-home products of seven General Electric departments—major and traffic appliances, radio and television equipment, farm equipment, construction materials, lighting, heating and air conditioning equipment, and Textolite counter tops.

A special section of the catalog is devoted to the General Electric Home Bureau and tells how that organization assists farmers and their wives in planning complete electric kitchens and laundries.

Starting with a rough sketch made by the farmwife, the Bureau prepares an exact floor plan showing how appliances should be arranged for maximum convenience, and then sets up and photographs a miniature kitchen. Plan and colored picture are returned to her for study.

A one-page table in the catalog shows at a glance the estimated cost of operating the various pieces of electrical equipment.

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The extra long life of Kold-Hold Plates is due to exclusive design features which eliminate the operational failures found in conventional plate design. In Kold-Hold Plates, the refrigerant passes through tubing along the outer edges of the plate first... before it reaches the center. (See drawings below.) As a result the outer edges freeze first and the strain caused by the expansion of the eutectic is placed on the center and strongest part of the plate. DUE TO THIS PATENTED METHOD OF CON-

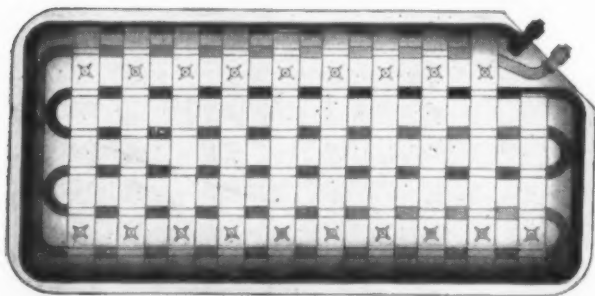
STRUCTION WHICH RESULTS IN THE PERIMETER FREEZING FIRST, KOLD-HOLD TRUCK PLATES CANNOT SPOIL YOUR TRUCK LOAD, THROUGH MECHANICAL FAILURE.

There are other patented features which help make the Kold-Hold Truck Plate the most dependable on the market today. The streamlined design and rounded corners provide extra strength where it's needed most. There's no chance for ice to cake over the end.

The drawing at the left shows how the tubing carries the refrigeration all around the outer edges of a Kold-Hold Plate before going into the center. This takes the strain off the edges. The end view shows how the center of a Kold-Hold Plate "gives" as the eutectic freezes and expands. In conventional plate designs, the center freezes and places excessive strain on the edges.

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Indonesia Pictured by Analyst as a Natural, Wide-Open Market for Industry Equipment

By Eugene Hes, International Market Analyst

Little is it recognized that the size and importance of Indonesia go far beyond the scope to be expected of "just another colony of a European country."

The importance of Indonesia has several basic reasons. The accompanying map indicates the large dimensions of this archipelago (it extends over 3,000 miles in one direction), which contains some of the largest islands of the world. Its population is estimated at 65 million.

An economic analysis of this region is, at this moment, somewhat overshadowed by political events.

The Dutch have done a magnificent job of colonization and development and have spared no effort in transforming these jungle islands—especially within the last 50 years—into one of the world's most productive sources of primary commodities of mineral and vegetable origin.

DUTCH OBJECTIVE

They are trying to transform this colonial empire into a self-governing unit of the Dutch Kingdom instead of handing a great part of it back to a handful of politicians who have been cooperating with Japan and who also have strong connections with the Kremlin.

It is to be hoped that the political differences will be solved in a way which is compatible with the ideals of the United States and the United Nations.

In order to present to the manufacturers of air conditioning and refrigeration equipment a good picture of this broad field, wide open for the products of our industry, it is advisable to give a picture of what the marvelous development by the Hollanders has achieved in the way of modern installations, schools and hospitals, harbor installations, railroad facilities, and airports—to mention only a few.

None of these things existed in Indonesia a little more than 50 years ago.

The actual area of Indonesia is about one fourth that of the United States. Of the population of 65 million, only 250,000 are white. The vast majority of the people are of the various yellow races, mostly Malay.

The Malay language is used in the entire archipelago to avoid the confusion of many hundreds of different languages and dialects. For our export industry, the Dutch and English languages are appropriate and sufficient.

The density of the population in Java, where two thirds of all these colonials live, is 821 persons a square mile, as compared to 488 in the United Kingdom, 700 in Holland, and 45 in the United States.

GOVERNMENT SETUP UNIQUE

The enterprising Netherlands have evolved a unique system of government for this huge population. A small body of high officials of the white race is assisted by the original native governments and princes of the many provinces.

Some of the provinces are administered directly from Batavia, the capital of Java, but many have retained their autonomy completely, having their own legislatures and making their own budgets.

This system was installed already before World War II, and the Dutch have declared their willingness to extend this system to an almost complete general autonomy, with the Royal Dutch House retaining its sovereignty.

The greatest part of Indonesia is fully willing to go along with this system. Only a large section of Java and Sumatra, where the population does not object to Dutch sovereignty is aspiring to complete independence under a handful of young politicians.

Enormous progress has been made

since 1900 in the development of the Indies in every respect.

At the outbreak of the second World War, the archipelago possessed 37 government hospitals with 14,600 beds; 64 communal hospitals with 4,800 beds; 106 native government hospitals with 3,500 beds, and 412 private hospitals with 39,000 beds, altogether 619 hospitals with 61,900 beds. All this was started practically from scratch between 1860 and 1890.

In the educational field a similar development took place. In the 19th century there were only a few missionary schools operating. In 1933, seven years prior to World War II, there were 1,850,000 native pupils in the elementary grades and 143,000 in the higher grades.

This number increased in 1939 to 2,117,000, and 149,000, respectively. In 1939, the government spent on education alone \$25 million.

It can easily be imagined what air conditioning and refrigeration means for such installations and public buildings, especially when it is borne in mind that the equator runs right across the large islands of Sumatra, Borneo, and Celebes.

FOUR YEARS AT A TIME

The climate in general is of such a nature that the many thousands of Dutch families who are directing the country's affairs, usually never stay longer than four years in the archipelago, then return for one full year to a moderate climate and, generally speaking, repeat this five year cycle only four or five times. That's about all a white man can take.

Parallel to this development run the systematic organization of the cultivation of tropical plants for domestic and international consumption, and the steady industrialization of the country.

This industrialization does not aim at competing with highly industrialized countries, but rather as an additional means of providing a population with necessary consumer goods, where the general standard of living often does not allow a greater expenditure than 20 to 30 cents a day.

In the period in which education and other cultural institutions were built up at remarkable speed, the industry of the country grew to 5,400 factories in 1930, and increased to 7,200 just prior to the outbreak of the last war.

Hand in hand with this cultural and industrial progress came the construction of modern harbor installations, very extended irrigation works for improved agricultural production and industry (electric current production by water power), extensive railroad lines, superb scenic highways, and a system of interlocking air-lines.

The United States and Holland always occupied the first places as the largest customers of Indonesia. It is interesting to note in this connection that Japan's imports have always been negligible, this throwing a peculiar light on the Japanese attempts at subjugating Indonesia.

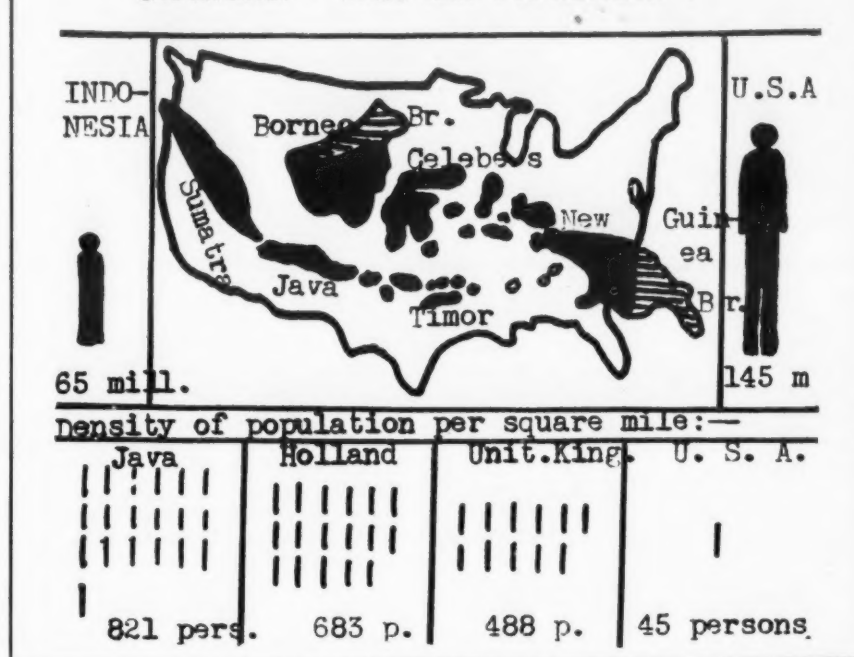
U. S. IMPORTS THIRD

In the matter of imports to the Indies, the situation was different, as Japan succeeded in disposing of great quantities of cheap products in the islands. Holland was always a close second, if it did not occupy first place, and the United States was in third place.

To give an idea of the importance of the Dutch East Indies upon world economy in general, and upon United States' requirements of basic materials in particular, the main products will be mentioned here.

The production of natural rubber, both by the systematic plantation method and by native exploitation, brought to the world markets before the war 39% of all natural rubber. Since the United States took the bulk of this production, the rubber situation at the beginning of World War

INDONESIA - SIZE AND POPULATION :



ABOVE: This projection compares size and population of Indonesia with the United States.

II, and especially after the Japanese occupation of Indonesia, can well be understood.

Tin is produced in the islands in such quantities that in normal times 18% of the world production of this basic raw material originated there. Java also dominated, together with the Philippines and Cuba, the world sugar markets.

OTHER EXPORTS

Of quinine, needed for fighting the most widely spread sickness, malaria, the islands produced over 93% of the raw material: bark of the quinchona tree.

A very large slice of the world market has been filled in the supply of copra, other edible vegetable oils, spices, tea, coffee, high-class tobacco, kapok, sisal, and in addition petroleum products which were exported in several years before World War II to the value of \$75 million in one year alone.

It must be admitted that some of these markets may not regain their old importance as the United States is taking, or has taken, wise precautions not to be cornered again with regard to rubber and quinine. Our synthetic industries, however, will not and are not intended to, stifle the importation of the natural products for many reasons.

In order to round up this background information on an important potential and factual market for the products of the air conditioning and refrigeration industry, special emphasis must be laid upon the climatic conditions in the two main islands: Java, containing a population of about 42 million, and Sumatra, with over 8 million inhabitants.

In spite of its location at the equator, Java does not suffer from extreme heat as much as from continuous extreme humidity. The average temperatures are around 80° F., since the ocean and mountains, with breezes and thundershowers, have a cooling influence. Above 5,000 feet, conditions are actually tolerable.

DATA ON CLIMATE

On the coast, in Batavia, the absolute minimum has been established with 66° F., and, interesting to note, the maximum is registered at not higher than 96.1° F. The oppressive humidity generally fluctuates only between 78 and 87%.

From December to March, the north has the heavy rainy season—from April to October, the south gets the great rains. August is the hottest month at Batavia.

This city averages 122 thunderstorms in one year. The capital has an average of 72 inches of rain in one season, but other cities of importance have up to 169 inches of rainfall, quantities of 398 inches have been observed in some cases.

The climate in Sumatra is not very much different from that of Java. It is hot and extremely moist, but in the eastern coastal districts again the heat is modified by land and sea breezes. Southern Sumatra has the highest temperatures with a mean annual reading of about 80° F.

On the whole, Sumatra is somewhat hotter than Java. March, April, and May are the hottest months, January and February the coolest—but the difference in the temperature is not more than 2° F.

The rainfall and its distribution upon the various months varies considerably. The annual averages are for north Sumatra, 96 in.; for east Sumatra, 106 in.; and for west Sumatra, 122 in.

Danish Refrigeration Equipment

Firm Plans Buenos Aires Branch

WASHINGTON, D. C.—A Danish manufacturer of refrigeration equipment has announced that it will open a branch plant in Buenos Aires, Argentina, this spring, according to a report by the Office of International Trade.

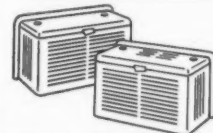
The report said the branch will handle mainly electrical repair work but that the manufacture of refrigeration equipment is also being planned.

NOW AVAILABLE FOR DELIVERY
1/2 TON AND 3/4 TON

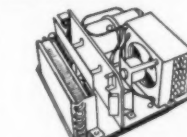
MITCHELL Room Air Conditioners!

IMPORTANT

GREATEST COOLING CAPACITY of any 1/2 ton and 3/4 ton units on the market is established by tests made by United States Testing Company in accordance with applicable standards published by American Society of Refrigeration Engineers.



With just two handsome models, you can sell top-efficiency air conditioning for all types of rooms—against all competition. Model M-12 (1/2 H.P.) delivers 5880 BTU/hr. Model M-34 (3/4 H.P.) delivers 8876 BTU/hr.



MITCHELL units are acclaimed by famous Testing Laboratories, Utilities and leading experts in the field. Each unit carries MITCHELL'S 5-YEAR WARRANTY.



MITCHELL backs you to the limit with every type of selling aid—mailing folders, display stand, newspaper mats and extensive national advertising—everything you need to help you sell easier and profitably.

A wonderful small unit that fits easily in any window... plugs in like a radio... and gives all the coolness and comfort made possible only by REAL Air Conditioning

Powerful, quiet running hermetically sealed power plant provides more cooling for the money. Removes oppressive moisture, and filters dust and dirt from the air. Will remove 99.9% of pollen from air—a real boon to hay fever sufferers.

You'll sell the MITCHELL Room Air Conditioner like any major appliance package—no big organization required. Just two models handle all types of rooms. Your market is unlimited—with every office and home in your community a prospect. Write for the full selling details today.

DEALERS! NOW IS THE TIME to get started. Send today for the complete profit-plan that shows you how to earn big money selling MITCHELL Room Air Conditioners.

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Air Conditioning Division
MITCHELL MANUFACTURING COMPANY
2525 N. Clybourn Ave., Chicago 14, Illinois

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CLEANABLE DOUBLE-TUBE COUNTER-FLOW WATER-COOLED CONDENSERS
Write for literature
Halstead & Mitchell
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Refrigeration Problems and their Solution

by Paul Reed

For Service and Installation Engineers



Paul Reed

Refrigerants (6)

In a few chemical plants and refineries, "hydro-carbons" had been used as refrigerants in some large tonnage equipment, and attempts had been made experimentally to use some of them in household and small commercial machines. They are called "hydro-carbons" because they are composed of hydrogen and carbon.

There are many of these, among which the best known and commonly used as refrigerants are butane, iso-butane, propane, ethane, and ethylene. All of these are derived from natural gas or petroleum oil and are, therefore, quite plentiful and can be produced quite cheaply.

ADVANTAGES OF THE HYDRO-CARBONS

They have very little odor—about like natural gas; their thermodynamic properties are good; they are very stable, for they can be used with any of the common metals, iron, steel, copper, brass, aluminum, etc.; they unite with water scarcely at all and therefore form no corrosive acids or other compounds; their physical properties, density, viscosity,

etc., are satisfactory; they mix readily with petroleum base oils, so that the oil that passes out of the compressor with the gas is carried along and thus can be kept moving through the system, and therefore does not "log up," especially in the evaporator.

There are so many of the hydro-carbons that one can be selected for almost any evaporator or condenser pressure-temperature combination desired for the specific application. This can be seen from the Comparison Table.

For example, a suction and evaporator pressure of about 0 p.s.i.g. (or atmospheric pressure) is desirable, as it lessens the probability of leaks at the seal or other points on the low-pressure side of the system—loss of refrigerant or entrance of moisture into the system.

WIDE CHOICE OF TEMPERATURES

Thus, with a zero gauge pressure, an evaporator temperature of -127.5° F. can be obtained with ethane; -53.7° F. with propylene; -44.2° F. with propane; 10.3° F. with iso-butane; 31.3° F. with butane. Other evaporator temperature selections are possible with some of the other

hydro-carbon gases such as hexane, pentane, etc.

The pressure-temperature characteristics of ethane are similar to those of carbon dioxide, propane to ammonia, and iso-butane to sulphur dioxide, as will be seen from the Comparison Table.

The chemical symbols for iso-butane and butane are the same; this is because the arrangement of the atoms in the molecule are different, and the two gases, although they have the same number of atoms of carbon and hydrogen, differ somewhat in their properties.

Thus, the hydro-carbons had some very good properties, and in fact one prominent manufacturer of household refrigerators used iso-butane for some years. Some of the other hydro-carbons, propane and ethane particularly, have been used considerably in the past few years for ultra-low temperature work.

OBJECTIONABLE PROPERTIES OF THE HYDRO-CARBONS

But the hydro-carbons had some objectionable properties, especially as affected safety. They were extremely flammable and explosive over a wide range of percentages of mixture with air. Their use was, therefore, quite

Refrigerant Comparison Table

Chemical Symbol	Satura. Temp. at 0 p.s.i.g. °F.	Evap. Press. p.s.i.g.	Cond. Press. p.s.i.g.	Standard Ton at 5° Evaporator, 86° F. Condensing				Hp. per Ton
				Net Effect B.t.u./lb.	Refrig. Circulated lbs./min.	Comp. Displ. c.f.m.		
Ethylene C ₂ H ₄	-155.0	404.3	2,080.0	45.0	4.45	1.4		1.53
Ethane C ₂ H ₆	-127.5	221.3	661.1	58.6	3.41	1.82		2.18
Carbon Dioxide CO ₂	-109.3	316.8	1,028.3	55.5	3.61	.96		1.83
Propane C ₃ H ₈	-44.2	27.2	140.5	121.0	1.65	4.09		1.02
Ammonia NH ₃	-28.0	19.6	154.5	474.6	.421	3.46		.98
Iso-butane C ₄ H ₁₀	10.3	* 3.3	44.8	111.5	1.79	11.50		1.08
Sulphur Dioxide SO ₂	14.0	* 5.9	51.8	142.8	1.40	9.10		.97
Butane C ₄ H ₁₀	31.3	*13.2	26.9	123.5	1.62	16.16		1.01

*Inches of mercury vacuum.

hazardous in locations where escaping refrigerant might become ignited, and this included homes, stores, etc. Their use in such applications as chemical plants and refineries was not prohibitive, for other gases or products were handled that were also flammable and explosive and extreme caution was regularly exercised.

Another very serious objection to some of the hydro-carbons was their toxicity. In restricted or poorly ventilated spaces, these gases may soon cause asphyxiation, and they are especially dangerous in that they have so little odor that they may not be noticed and thus may be breathed in enough quantity to be fatal or at best to cause dizziness, nausea, and vomiting.

In the years when newer and better refrigerants were being sought to take the place of ammonia, carbon dioxide and sulphur dioxide, the halide torch had not as yet been developed and moreover, it would not have been safe to use around equipment charged with gases as flammable as the hydro-carbons.

About the only leak test for them was the soap-and-water test. This consisted of painting a thick solution of soap and water on joints or other places of the equipment where leaks might be suspected. With an inside pressure, the leaking gas caused a bubble or series of bubbles to appear, thus indicating the presence of a leak and showing its location and extent.

This method can be used very effectively, although it is rather slow, but it requires quite a bit of skill and experience on the part of the man testing for leaks by the soap-and-water method.

So the hydro-carbons were not generally adopted to any great extent, chiefly because of the danger from fire or explosion resulting from a leakage of the refrigerant.

A NOVEL APPLICATION

In this connection, an interesting and clever use is made of the flammable property of the hydro-carbons. In a system devised for trucks or

other vehicles driven by internal combustion engines, liquid propane for example, is carried in a tank and fed through an expansion valve to the evaporator, where it vaporizes and produces the desired refrigeration.

Then instead of being recompressed and condensed and used over again as in the conventional compression system, the propane gas from the evaporator goes to a gas carburetor where it is mixed with the proper proportion of air and then fed to the cylinders where it explodes and furnishes the motive power. Then, of course, it is exhausted to the air in the usual manner.

METHYL CHLORIDE APPEARS

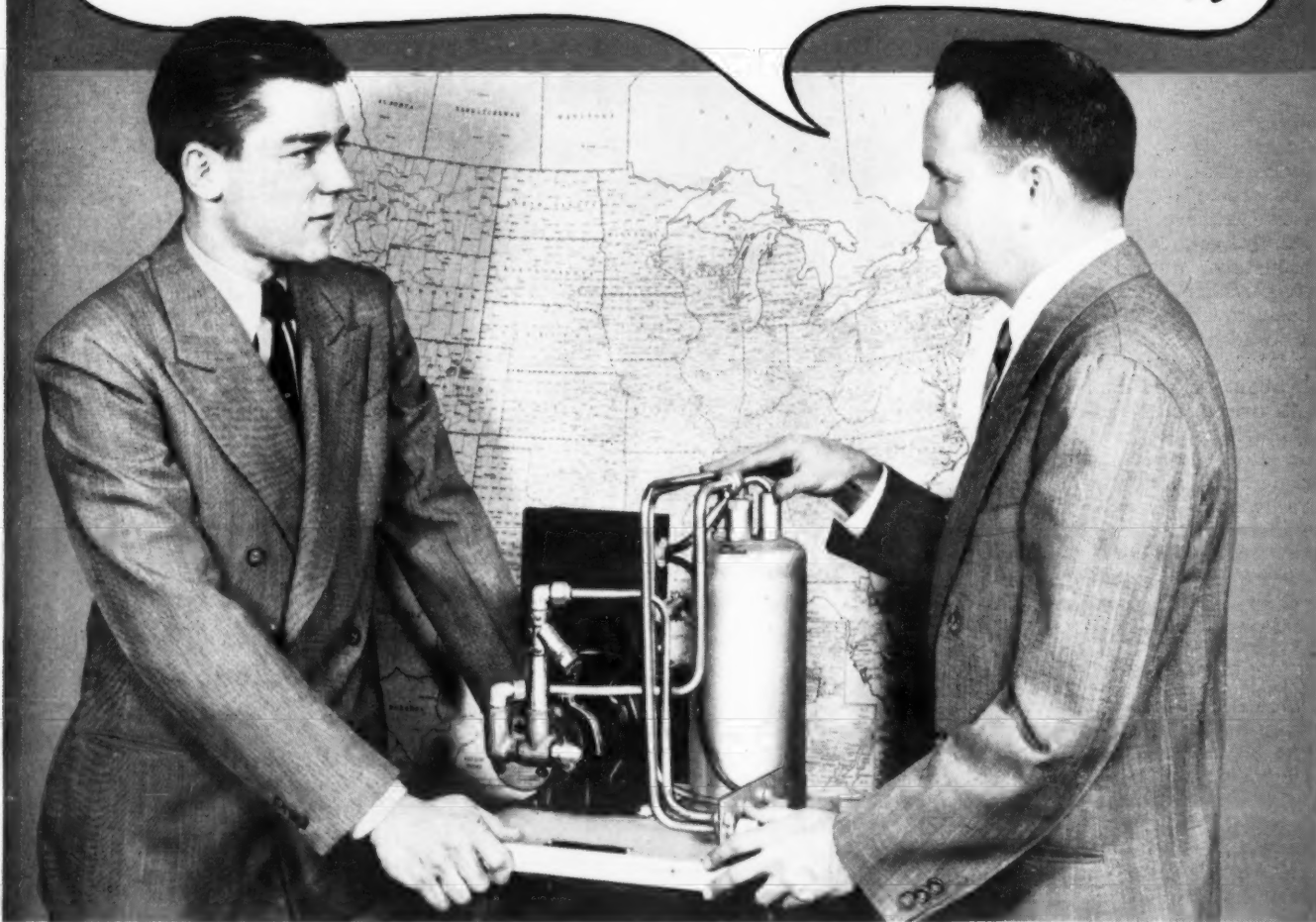
Shortly after World War I, the Roessler & Hasslacher Chemical Co. of Niagara Falls, N. Y. (now owned by du Pont and operated as their R & H Div.), started to manufacture, in commercial quantities, a new refrigerant, methyl chloride. It had been used extensively in France, but heretofore, had been produced in the U. S. only in laboratory quantities. It could be made by a comparatively simple process, of readily available materials. Its cost, although higher than that of ammonia or sulphur dioxide, was low enough to make its use feasible.

At about that same time, that is, in the early twenties, a new machine was put on the market, that was designed around methyl chloride. This machine and refrigerant became popular and within a few years methyl chloride had made a place for itself in household and small commercial equipment and soon several other manufacturers had also adopted it.

Its chemical symbol, CH₃Cl indicates that its molecule is composed of one atom of carbon, three atoms of hydrogen, and one atom of chlorine. Without the chlorine, the symbol would be that of a hydro-carbon, and methyl chloride does have some of the properties of the hydro-carbons, in somewhat modified forms.

(To Be Continued)

Here's why this compact Carbonator is EASY to sell... EASY to install...



New packaged TEMPRITE saves real money for owners of Taverns, Soda Fountains, Roadside Stands, etc.

You can get steamed up over the new Temprite Carbonator with little effort... and you can sell it like hot cakes! It's neat, compact and reliable. It gets the last full measure of *instantaneous carbonation* from every tank of CO₂ gas—pays for itself in no time at all and saves real money for its owner! There's no waste of CO₂ gas. No venting. No purging.

There are no flat, unpalatable drinks. Every glass sparkles with zip and zing. Carbonation is automatic and controlled.

But just listen to this. The Temprite user gets up to 6450 glasses of highly carbonated water from a 20 lb. tank of CO₂ gas. Can you top this?

The stainless steel carbonator itself is highly simplified; contains no moving parts, and packaged as it is with pump, motor and relay assembly, only three simple connections are necessary for a fast, easy installation. Fits in practically any location or under any fountain. Complete assembly weighs only 59 pounds.

Use the handy coupon below for full details.

TEMPRITE PRODUCTS CORP.

43 Piquette Avenue
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Please send me complete details on your new packaged Temprite Carbonator.

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Manufacturers of commercial and cabinet type water coolers, industrial water coolers, carbonators, draught beer coolers, soda fountain coolers, temperature control valves, oil separators, equalizer tanks, heat exchangers, etc.

He won't talk!

WHY DO YOU HAVE A REPUTATION FOR "KNOWING ALL THE ANSWERS" ON COMBATING MOISTURE?

WHY IS IT YOU HAVE FEWER CALL-BACKS ON YOUR MOISTURE CASES?

WHY IS IT YOU CAN FINISH A MOISTURE CASE IN A FRACTION OF THE TIME WE TAKE?

WHY IS IT YOU ARE NEVER "STUCK" ON EVEN THE MOST TROUBLESOME MOISTURE PROBLEMS?

Last November, at the R.S.E.S. Exhibition in Chicago, a refrigeration service engineer strolled up to our booth and started a discussion on Thawzone. He laughingly stated that he was somewhat of a "mystery man" to his brother engineers, since he invariably solved his moisture problems without "bating an eye." Naturally, they wanted to know how he did it. "No," he said, "you'll have to figure it out for yourself. That's my trade secret." Confidentially, he is using Thawzone. Perhaps you too can benefit from this man's experience.

Your wholesaler carries THAWZONE

HIGHSIDE CHEMICALS COMPANY
10 Colfax Avenue, Clifton, N. J.

THAWZONE*

PATENTED

The PIONEER FLUID DEHYDRANT

*TRADE MARK REG. U. S. PAT. OFF.

ALSO MAKERS OF

TRACE
REFRIGERANT
LEAK DETECTOR

Carrier Absorption Unit Uses Steam--

(Concluded from Page 1, Column 4)
dent, said the first public announcement of this development was purposely withheld until it had been thoroughly tested over a period of many months in both commercial and industrial applications. A number of such machines have now been installed in various parts of the country with entire satisfaction, he said. The first test unit, which air conditioned the Carrier offices in Syracuse, N. Y., has been in operation for nearly four years.

This absorption machine is seen as having application in areas where steam can be produced at relatively moderate costs, where there are district steam plants, where natural gas is available, or where a factory or department store or office building has a steam plant that is lying relatively idle in summer.

The unit will operate on either high or low pressure steam, or even low pressure waste steam. Aside from a small solution pump it has no moving parts, and therefore is practically noiseless and vibrationless.

It is light in weight and compact and is entirely suitable for installation on rooftops or intermediate floors as well as basements.

Carrier is producing the new machines in 115, 150, and 200-ton capacities, meaning that they are capable of creating a cooling effect equivalent to the melting of like amounts of ice each 24 hours. Single units will air condition areas of from 34,500 to 60,000 sq. ft.

The absorption principle is not new. However, it has been in extremely limited use for heavy duty purposes in recent years because of the lack of a refrigerant-absorbent combination that was both safe and efficient. Machines of this type using ammonia as a refrigerant have proved to be more costly, less efficient, and never suitable for air conditioning because of the toxic qualities of ammonia.

The Carrier machine lowers temperature through flash evaporation of sprayed water. The evaporation is induced by a highly absorbent brine solution, not unlike a mixture of

water and common table salt. This solution is used repeatedly without loss of salt by boiling off the water with steam and pumping it back into the absorber chamber.

Donald French, vice president in charge of Carrier's Engineering Division, reported that tests showed the present absorption machine operated at double the efficiency of the now largely obsolete ammonia machines, but also represented a lower initial cost because there was no need for rectifiers.

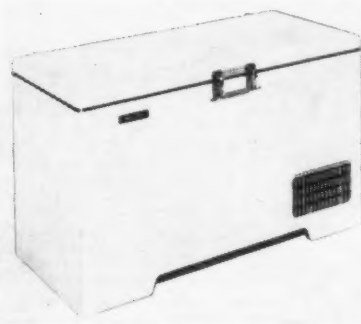
"We do not yet know the ultimate limits and capacities of this machine," French said. "For air conditioning purposes, water chilled to 45° is generally satisfactory. And where lower temperatures are required for industrial processes, these units will bring water down to 36°."

"However, the present machine uses less than 20 lbs. of steam per hour per ton of refrigeration—no matter what the steam pressure. It will automatically adjust itself to partial loads down to 15% of total capacity without loss of efficiency, and when higher tonnages are required it is readily adaptable to multi-unit installations."

Consolidated Edison Co. of New York, Inc., at its 4 Irving Place building, has had a Carrier absorption machine in operation since the Fall of 1946, using the service of the New York Steam Corp. as a source of steam supply.

The first multi-unit installation was made in the First National Bank building in Oklahoma City and was placed in operation during the summer of 1948. Other absorption machines were installed in the following order: Sealright Co., Fulton, N. Y.; Rochester Gas and Electric Corp., Rochester; Scarritt Estate Co., Scarritt bldg., Kansas City; Oklahoma Natural Gas Co., Oklahoma City; Burlington Mills Corp., (Empire State bldg.), New York City; Eastman Kodak Co., Rochester; D. J. Healy Shops, Inc., Detroit; Oklahoma Natural Gas bldg., Tulsa; Lone Star Gas Co., Dallas; Employers Casualty bldg., Dallas; Louisiana National Bank Co., Baton Rouge; United Gas Corp., Houston.

New In Wilson Line



Wilson Model F-12.

Wilson Adds 2 Models--

(Concluded from Page 1, Column 4)

The freezers are constructed with an aluminum food liner—special aluminum tubing brazed to the line to provide rapid pull down and maximum heat removal. The storage space is separated into three compartments by the use of light wire grilles.

Refrigeration is supplied by a hermetic condensing unit.

Appliance and Specialty Wholesalers Lag '48 Pace

WASHINGTON, D. C.—Wholesalers sales of appliances and specialties, based on a sample of 90 such firms, showed a decline of 11% in March compared with the same month in 1948, but a gain of 8% over the volume attained in February of this year.

For the first quarter, volume was off 7% for this group.

Restaurant Exhibit Opens Soon--

(Concluded from Page 1, Column 5)
booths for the event, according to the latest information from NRA headquarters here. The exposition hall, in which more than 500 booths will be used, will be opened at 1 p.m. May 24.

In addition to the exposition, the association will conduct a program consisting of general sessions in the mornings, sectional discussion periods during the afternoons (except for the opening day), and a number of special events.

One of the highlights of the convention will be the premier showing of the restaurant industry's full color, sound motion picture, "America's Heritage of Hospitality." This film, which was produced by the association in cooperation with Standard Brands, Inc., will be shown at the opening session.

A "Hospitality Night" party will mark the close of the opening day's activities. More than 5,000 are expected to attend the 30th anniversary "Fork Supper" which will be held that evening.

Some of the speakers scheduled for the following morning sessions are Charles Sawyer, Secretary of Commerce (May 25); Fred A. Hartley, co-author of the Taft-Hartley Act (May 26); and Edward R. Murrow, news commentator, journalist, and author (May 27).

A feature of each morning session will be a panel discussion on "Training In Human Relations for Managers and Supervisors." L. I. Graham, president of Food Services, Inc., New York City, who is said to be one of the country's outstanding restau-

rant designers and consultants, will speak during the general session May 27.

The association's annual dinner at the Chalfonte hotel May 27 will close the convention.

A partial list of exhibitors is as follows:

Ajax Corp. of America; Anheuser-Busch, Inc.; Baker Refrigeration Corp.; Circular Metal & Equipment Co.; The Dunhill Soda Fountain Corp.; Frigidaire Div.; Herrick Refrigerator Co.; Hotpoint, Inc.; Hussmann Refrigeration, Inc.; Ice-Flo Corp.; International Harvester Co.; Leitner Equipment Co.; McCray Refrigerator Co.; Norris Beverage Dispenser, Inc.

Phenix Soda Fountain Co., Inc.; Pinnacle Equipment Corp.; Robertshaw-Fulton Controls Co.; Stainless Food Equipment Co.; Star Metal Mfg. Co., Inc.; Sweden Freezer Mfg. Co.; Thermocuber, Inc.; Tyler Fixture Corp.; United Show Case Co.; Victory Metal Mfg. Co.; York Corp.

MDD?

Coming!

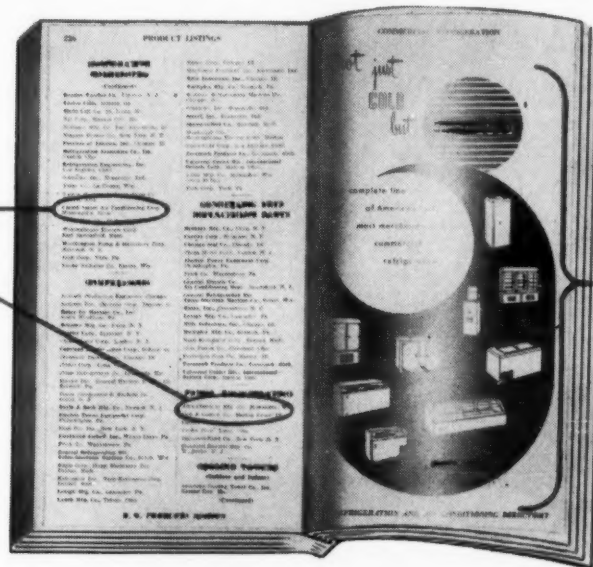
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THE INDUSTRY'S STANDARD SOURCE-OF-SUPPLY REFERENCE SINCE 1932

IMPACT!

IN A PROVEN SALES BUILDER

YOUR LISTINGS



YOUR ADVERTISEMENT

EXTRA DETAILS THAT SPELL SALES

Your advertisement, placed close to your product listing in the new 1949-50 edition of the Refrigeration & Air Conditioning Directory, will give buyers those extra details which often are the difference between a sale made or lost. Your general listing and your advertisement giving the details which distinguish your product from the others, forms a powerful combination which can mean real money to you—Directory advertising puts extra selling power into your listings.

Directory advertising works for you 365 days of the year reaching a minimum of 20,000 important buyers who will be the source of many surprise orders.

The Directory is the industry's standard source-of-supply reference, published since 1932—definitely a proven sales builder. Cost of a page in the new Directory is only \$245, a little more than 1¢ per active copy—surely a low-cost way to keep your name and products before the industry the year around. When buyers look for a new product or new lines they look for details—reasons why. Directory advertising gives you the opportunity to fill in the details and tell a full-line story.

To be assured of getting the best position for your advertisement and to do a complete selling job—

ORDER TODAY

ADVERTISING CLOSES JULY 1

ALL-INDUSTRY EDITION

PUBLICATION NOV. 15

Refrigeration and Air Conditioning Directory

BUSINESS NEWS PUBLISHING CO., 450 W. FORT ST., DETROIT 26, MICH.

a line
a lure
and a LEADER

Refrigerator Distributors and Dealers are going to fish for business from here on in. They'll need a good line and a lure on their leader too.

Sale Fish Need Catching

A brilliant lure on the VICTOR line is QUICKFREEZE... the leader in freezer sales everywhere.

There is still room in the Victor Products family for alert distributors and dealers. We'll provide the famous Victor line with a lure of our 33 years' experience in Refrigeration manufacturing. Just write or phone quickly to the General Sales Manager.

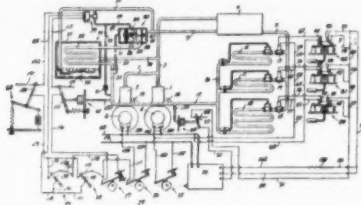


PATENTS

Week of February 15

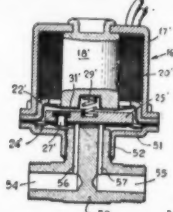
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2,461,760. MULTIPLE REFRIGERATION SYSTEM WITH CONTROLS THEREFOR. Alwin B. Newton, Minneapolis, Minn., assignor to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., a corporation of Delaware. Application April 1, 1944, Serial No. 529,137. 19 Claims. (Cl. 62-4.)



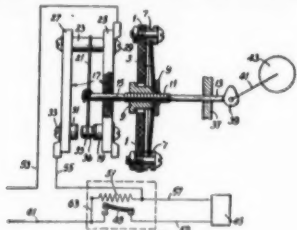
1. In a refrigerating system, in combination, an evaporator for treating a medium, a thermostatic expansion valve connected in flow controlling relation therewith, means for supplying said expansion valve with refrigerant under relatively high pressure, means for removing refrigerant from said evaporator under relatively low pressure, the minimum temperature of said evaporator depending on the value of said low pressure by-pass means for connecting said means for supplying refrigerant to said means removing refrigerant, said by-pass means including a valve for controlling the flow through said by-pass affecting the value of said low pressure, and means for regulating the valve in said by-pass in response to the psychrometric condition of said medium in such manner that the value of said low pressure may be varied in a manner to maintain said psychrometric condition constant.

2,461,772. FLUID CONTROL VALVE. William A. Ray, Los Angeles, Calif., assignor to General Controls Co., a corporation. Application Nov. 20, 1944, Serial No. 564,188. 3 Claims. (Cl. 137-139.)



1. In a fluid control valve: a cup-shaped casing; a member having a cylindrical portion mounted so as to extend through an opening in the end wall of said casing in a direction generally at right angles thereto, and at its outer end a pair of laterally-extending portions forming an inlet and an outlet connection for the valve, said member having a pair of passages extending longitudinally of said cylindrical portion to the inner end thereof and communicating individually with said connections; a closure cooperably with said inner end of the member to control fluid flow through said passages; and motor means sealingly covering the open end of said casing for moving said closure in opposite directions generally along the axis of said cylindrical portion of the member; said passages serving as the sole means for conveying fluid through the valve.

2,461,903. THERMOSTATIC CONTROL. Edward F. Kurtz, Attleboro, Mass., assignor to Metals & Controls Corp., Attleboro, Mass., a corporation of Massachusetts. Application June 16, 1945, Serial No. 599,808. 18 Claims. (Cl. 175-320.)

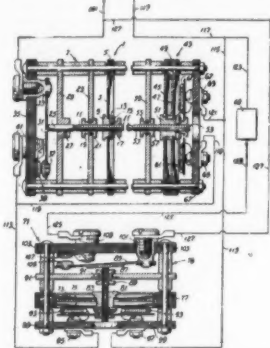


1. A thermostatic control comprising a stationary contact, a movable contact, an inherently snap-acting temperature responsive device, inherently snap-acting from one position to another on tem-

perature change, located to bring the movable contact against the stationary contact when said device is in one of said positions and to open said contacts when said device snaps to said other position, and mechanical periodically effective means for causing said device to go from said other position to said first position.

2. A thermostatic control comprising a stationary contact, a movable contact, a diaphragm thermostatic disc located to bring the movable contact against the stationary contact when said disc is in one position of curvature, means for mechanically urging said disc periodically toward said one position to close said contacts, and a time delay means operable in response to sustained closure of said contacts for an interval greater than that wherein the contacts are closed by said mechanical means.

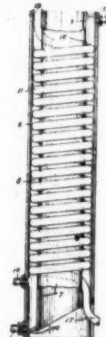
2,461,904. THERMOSTATIC CONTROL. Victor G. Vaughan, Attleboro, Mass., assignor to Metals & Controls Corp., Attleboro, Mass., a corporation of Massachusetts. Application March 21, 1946, Serial No. 655,979. 22 Claims. (Cl. 175-320.)



1. A thermostatic control comprising contacts in a circuit, a temperature-responsive device adapted to move to one position to close said contacts upon temperature change in one direction and to move to a second position to open said contacts upon a temperature change in the other direction, and a thermal motor adapted periodically to urge said device to said first position.

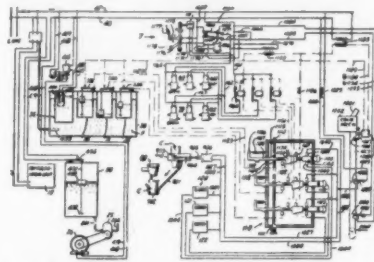
11. A thermostatic control comprising normally open contacts adapted to make and break a circuit, an inherently snap-acting temperature-responsive device adapted to snap to one position on temperature change in one direction to close said contacts and to snap to a second position on temperature change in the other direction to permit said contacts to open, a thermal motor for periodically applying an external force to said device upon cooling to urge said device to said first position and for periodically releasing said force upon heating to permit said device to snap to said second position, and a time-delay means responsive to closure of said contacts, said thermal motor having predetermined heating and cooling periods, said time-delay means having a time-delay period greater than the heating period of said motor and a reset period less than the cooling period of the motor.

2,462,012. REFRIGERANT DEOILER. Ernest F. Vilter, Milwaukee, Wis., assignor to The Vilter Manufacturing Co., Milwaukee, Wis., a corporation of Wisconsin. Application Nov. 15, 1943, Serial No. 510,330. 2 Claims. (Cl. 62-115.)



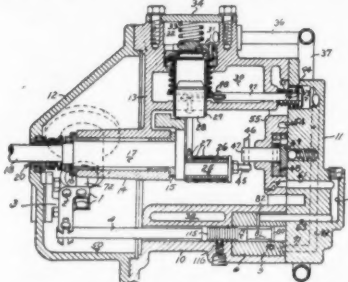
2. A refrigerant de-oiling unit comprising, outer and inner concentric cylindrical casings interconnected and sealed at their adjacent ends to form an intervening annular chamber extending throughout the full length of both casings, a helical cooling coil disposed coaxial of and within said chamber and being spaced slightly from the surfaces of said casings which are exposed to said chamber, valve means for simultaneously admitting refrigerant to the opposite ends of said coil and chamber, and valve means for effecting drainage of accumulated oil from the refrigerant admission end of said chamber.

2,462,019. BEVERAGE DISPENSER. Wade W. Bowman, New York, N. Y. Application Jan. 15, 1942, Serial No. 426,822. 10 Claims. (Cl. 225-26.)



1. In a beverage dispensing mechanism in combination supply means for a plurality of fluids, means for dispensing from one or more of said supplies a predetermined total amount of fluid and means for selectively varying the constituent proportions of said total amount of fluid during the dispensing thereof.

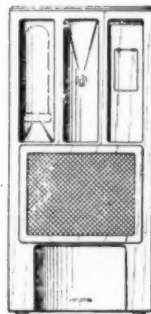
2,462,039. COMPRESSOR UNLOADING MEANS. William P. Gibson, Dayton, Ohio, assignor to Chrysler Corp., Highland Park, Mich., a corporation of Delaware. Application Aug. 22, 1946, Serial No. 692,269. 2 Claims. (Cl. 230-26.)



1. A compressor having a plurality of radially extending cylinders each of a plurality of which is adapted to be individually controlled to compress gas or to be unloaded, comprising a first assembly including a main casting, a crank shaft supported thereby, means forming a plurality of radially extending compression cylinders, compression pistons operatively connected to said crank shaft, suction valve and discharge valve assemblies carried by said main casting, a plurality of individual cylinder unloading means carried by said main casting, each comprising an unloader piston and means operated thereby to hold one of said suction valves open whereby to cause its associated compression piston to reciprocate idly, all of said unloader pistons extending toward one end of said main casting, a master valve carried by said main casting, a first end cover for said main casting, a lubricant pump carried by said end cover and including means for establishing driving connection of said pump to said crank shaft when said casting and cover are assembled, means forming a plurality of unloader cylinders in said cover, each in position to receive one of said unloader pistons when said casting and cover are assembled, said cover having a plurality of passages therethrough whereby fluid pressure created by said pump may be transmitted to said master valve and selectively therefrom to said unloader cylinders, a second end cover for said main casting, a suction pressure responsive device carried by said second cover and adapted to collapse or expand as the suction pressure of the compressor varies, and means operatively connecting said device to said master valve upon assembly of said second end cover to said main casting whereby to control the selecting action of said master valve.

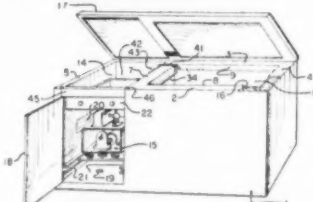
DESIGNS

152,722. DESIGN FOR A WATER COOLER. Samuel O. Morrison, Pine Ridge, Pa.



Week of February 22

2,462,115. FREEZING CABINET WITH REFRIGERATING REMOVABLE UNIT. Harry F. Luecke, Herndon, Va. Application June 10, 1946, Serial No. 675,743. 5 Claims. (Cl. 62-116.)



1. Freezing cabinet comprising a box having an open-topped freezing compartment and a compressor unit compartment having an opening through the front and also open at the top, a partition separating said compartments, the walls of said freezing compartment, including said partition, being heat insulated, a groove across said partition communicating with said compartments, freezing apparatus comprising a compressor unit removably contained in said compressor unit compartment, an evaporator removably contained in said freezing compartment, and flexible refrigerant connections between said compressor unit and said evaporator of such length as to permit sequential removal of said compressor unit and said evaporator from said cabinet without the necessity of breaking said connections, said connections passing through said groove, and a lip for said cabinet overlying said compartments and groove.

(To Be Continued)

CLASSIFIED ADVERTISING

EFFECTIVE with the issue of June 6, 1949, rates for classified advertising will be revised as follows:

RATES for "Positions Wanted" \$5.00 per insertion. Limit 50 words. 10¢ per word over 50.

RATES for all other classifications \$7.50 per insertion. Limit 50 words. 15¢ per word over 50.

ADVERTISEMENTS set in usual classified style. Box addresses count as five words, other addresses by actual word count. Please send payment with order.

POSITIONS WANTED

ENGINEER: GRADUATE M.E., 28. Six years experience in refrigeration & air conditioning, primarily in design & manufacturing. Some sales experience with personality & background well suited for sales or application activity. Registered professional engineer. Member of ASRE. BOX 3175, Air Conditioning & Refrigeration News.

INDUSTRIAL ENGINEER-Production inventory control. Extensive experience heavy industry, industrial refrigeration and air conditioning. Five years production manager, plant of 3,000 including 100 ton grey iron foundry. Responsible sales-production coordination, inventory, scheduling, stores. Want connection where results will count. BOX 3179, Air Conditioning & Refrigeration News.

POSITIONS AVAILABLE

SALES ENGINEER air conditioning and commercial refrigeration up to 30 tons. If you are thoroughly experienced in making surveys, estimating and selling package and central station equipment here is an unusual opportunity. As exclusive distributors of York equipment in greater Cleveland area, we can use you immediately, and you can cash in immediately. Permanent future assured with an established organization making refrigeration their business, not a side line. Give full details with application. Replies confidential. COMMERCIAL REFRIGERATION INC., 1835 East 24th St., Cleveland, Ohio.

SEVERAL EASTERN territories available for a manufacturer's agent who knows the air conditioning & heating business. A very profitable & attractive connection for a man capable of organizing and working with contracting dealers. Please submit your experience in first letter. BOX 3173, Air Conditioning & Refrigeration News.

EQUIPMENT FOR SALE

SOLENOID VALVES. Various makes and sizes. Brand new at less than manufacturer's cost. BIMEI CO., Cincinnati, Ohio.

SEALED UNITS rebuilt and exchanged. Prompt service on Coldspot (sealed & semi-sealed). Chieftain, Gale, Tecumseh, Norge and many others. One year guarantee. Write for price list and shipping instructions. BRIGHTON, 3906 Joy Rd., Detroit 6, Michigan.

FROZEN FOOD cabinets for sale (30)-"Acco" cabinets made to Birdseye specifications by Bastian-Blessing Co. Approx. dimensions: height 35 1/4", width 27 1/4", length 98 3/4", capacity 20 cu. ft. At our cost-\$495.00, superstructures to match-\$120.00 F.O.B.: Culver City, California. Subject to prior sale. Send for literature. COLLINS ENGINEERING COMPANY, 9054 Washington Blvd., Culver City, California.

EIGHTY PANEELECTRIC Cuberators at your price. Make us an offer. All have Universal hermetic 1/4 or 1/2 horsepower water cooled condensing units. Other parts include expansion and solenoid valves, relays, controls, etc. Will sell for a fraction of the cost of the parts. J. GEO. FISCHER & SONS, 1019 E. Genesee, Saginaw, Michigan.

CLOSEOUT 800 dehydrators-American Injector Co. Model 116-4 silica gel filled, 6 7/8" long over-all, 1 3/4" diameter, 1/4" SAE connections. Send one dollar for sample or make offer for lot. FRANK P. FOLEY INC., 564 Walton Ave., New York 51, N. Y.

SPECIAL CLOSE-OUT on brand new Yoder, Dole, BTC and Stangard freezer plates-19" x 30" @ \$5.00; 22" x 32" @ \$6.00; 19 1/2" x 60" @ \$8.00; 19" x 72" @ \$9.00; 19 1/2" x 72" @ \$9.00; 21" x 72" @ \$10.00; 22 1/2" x 75" @ \$10.00; 19" x 84" @ \$11.00; 25" x 83" @ \$12.00. Motors-Jack & Heintz 1/4 H.P. @ \$13.00; Chief 1/2 H.P. @ \$15.00. Coils-Tenney finned coils 76" x 16" x 2 1/4" 6 tube single row @ \$9.00. Units-Chrysler Airtemp air-cooled units, 1/4 H.P. @ \$59.00; 1/2 H.P. @ \$64.00; 3/4 H.P. @ \$79.00; 1 H.P. @ \$112.00; 1 1/2 H.P. @ \$178.00. Send deposits to GENERAL REFRIGERATORS CORP., 678 Broadway, New York 12, N. Y.

BEVERAGE COOLERS-Dry storage-6 ft. \$175.00 and 8 ft. \$195.00. Self-contained 6 ft. \$295.00 and 8 ft. \$375.00-capacities 20 and 25 cases-4" insulation-metal slide doors-wire dividers-steel in and outside-baked enamel exterior. Available for immediate delivery F.O.B. Phila. GENERAL REFRIGERATION CO., 856 No. Broad St., Philadelphia, Pa. St. 7-2240 and 2241.

FOR SALE: New Universal compressors at substantial discounts. 1 W75 FH, 3/4 H.P. 1 PH \$150; 2 W75 FH, 3/4 H.P. 3 PH \$160 ea.; 1 W100 FH, 1 H.P. 1 PH \$190; 3 SW750 FS, 10 H.P. 3 PH \$690 ea.; 1 W1500 FH less motor and starter \$650; 1 1/2 H.P. hermetic unit \$59. Send order and check to WALTER HAERTLE COMPANY, 2840 Fourth Avenue South, Minneapolis 8, Minnesota.

SUBJECT TO prior sale: Hermetic Chieftain units: 1/4 H.P.-\$44.50; 1/2 H.P.-\$44.50. Other well known hermetics: 1/4 H.P. fan cooled-\$52.50; 1/2 H.P. fan cooled-\$57.50; 1/4 H.P. fan cooled heavy duty-\$59.50; 1/2 H.P. fan cooled heavy duty-\$69.50. Open units-standard makes: 1/4 H.P.-\$56.00; 1/2 H.P.-\$64.50; 3/4 H.P.-\$84.50. 1 1/2 H.P. air or water cooled Universal Cooler-\$199.00; 2 H.P. air or water cooled Universal Cooler-\$224.00; 3 H.P. air or water cooled Universal Cooler-

\$259.00. All above units new and in original crates. Air cooled condensers: 3 row, 1 pass, 13" x 12" x 3"-\$39.95; 4 row, 4 pass, 13" x 11" x 4 1/4" \$4.45; 4 row, 4 pass, 18" x 12" x 4 1/4" \$6.25. Upright receiver tanks, shut off valve, 4" x 11"-\$2.65. Penn low or high pressure control type, 260 Apol-\$3.75. Detroit Lubricator L. P. control-\$4.00. G. E. blower fan motor with fan-\$4.50. Superior heat exchanger, 13" overall, 3/4" x 1/2" \$4.75. Mueller heat exchanger, 14 1/2" overall, 3/4" x 1/2" \$5.00; Mario heat exchanger, 2" overall, 1/2" x 1 1/4" \$7.50. Kramer Trenton panel blower complete with heat exchanger, 1/2 to 1/2 ton-\$29.00. Superior master drier, 1/4 flare x 1 1/4" x 5 1/2" \$7.50. Weatherhead drier, 1/4 flare x 1 1/4" x 6 1/2" (lots of 10)-65¢. U. S. "Freon" gauge 1/4" face, 30" vac. 150# or 300# with corresponding temp. scale, red warning hand, mounting holes-\$4.50. Scientific dial thermometer, 4 1/2" face, minus 40 to plus 120, 5 ft. tube, mounting holes-\$4.50. Kanco type k.w. 412 cold control complete-\$4.00. WALTER W. STARR, 120 George St., Chicago 13, Ill.

SURPLUS FOR sale-all new Acme shell & tube condensers for "Freon." (Manufactured by Acme Mfg. Co., Jackson, Michigan.) 17-SC-300 @ \$46.00, 40-SC-500 @ \$63.00, 8-J-1000 @ \$134.00, 8-J-1500 @ \$162.00. Subject to prior sale. Send orders for any quantity. UNITED STATES AIR CONDITIONING CORPORATION, Minneapolis 14, Minnesota.

COMFORT COOLERS-Model 16E. Special comfort evaporative window coolers complete with water circulating pump-in original cartons-\$44.00 Each, F.O.B., St. Louis. Freight prepaid on lots of 12 or more. HENRY WEIS JR., INC., 1919-21 Washington Avenue, St. Louis 3, Missouri.

17 NEW STANGARD, 8 hole ice cream cabinets in original factory crates, less compressors, \$225.00 each. Here is a real bargain if you can use them. WRIGHT REFRIGERATION, INC., 4025 Pacific Highway, San Diego, California.

RELAYS (1,000) 1/4, 1/2, 1/2 G.E. hammer type-1/20, 1/16, 1/8, 1/4, 1/2, 1/2, 1/2 Frigid-air, 1/4, 1/4, 1/2 Delco. Each relay is rebuilt and guaranteed. This complete lot of assorted relays for only \$950.00. Write BOX 3178, Air Conditioning & Refrigeration News.

FRANCHISES WANTED

MANUFACTURERS' REPRESENTATIVE seeking lines for central Illinois territory. Wide and lengthy experience in air conditioning and refrigeration engineering. Enjoying top clientele in territory. BOX 3176, Air Conditioning & Refrigeration News.

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NEW YORK Area. Refrigeration contracting, established over 15 years. Total volume 1947 & 1948 \$500,000. Excellent location and facilities. Will sell with or without building. For particulars write SANDERSON & ENGEL, Attorneys, 17 Academy Street, Newark, New Jersey. Confidential.

DOMESTIC DEPARTMENT for sale of Wright Refrigeration, Inc., San Diego. In order to devote our entire time, effort and money to the further development of the Hussmann self-service food store equipment we will sell out our domestic department at invoice and give a good lease on the building. Here is a real chance for some one wanting to get in the domestic refrigeration and appliance business. Many thousands of dollars have been spent advertising this department. It is all yours for free just buy the stock and move in. WRIGHT REFRIGERATION, INC., 4025 Pacific Highway, San Diego, Calif.

RESTAURANT EQUIPMENT department of Wright Refrigeration, Inc. for sale. In order to devote more of our time to our self-service food department, we are willing to sell out this restaurant supply and equipment part of our business. Close in territory of over a half million with only two major restaurant supply houses in town. We do not believe this opportunity exists anywhere else in the country for a good live restaurant supply and equipment house. If interested act at once. This is a real buy for a quick deal. WRIGHT REFRIGERATION, INC., 4025 Pacific Highway, San Diego, Calif.

GOING REFRIGERATION business. Reason for selling: owner's sudden death. Experienced help available. Buyer privileged to buy home and shop combination if desired. Price including equipment, two trucks, goodwill: \$7,500.00. House and shop: \$7,500.00. Located in community of 20,000, plus surrounding towns. BOX 2151, Air Conditioning & Refrigeration News.

FOR SALE: Michigan's leading independent wholesale hermetic rebuilding business. Completely equipped plant, office equipment and new trucks. Good local and out of state business the year round. Will sacrifice for \$12,500 due to ill health. Building 22' x 125' available for long lease at low rent. BOX 3155, Air Conditioning & Refrigeration News.

PARTNER WANTED-for established commercial refrigeration & air conditioning business, located in New York City. Sales & mechanical ability essential. Real opportunity for right man. BOX 3166, Air Conditioning & Refrigeration News.

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WHY TAKE a chance with untested commercial refrigeration fixture makers? We operate under Michigan Public Service Commission permit #L765 any place in the State of Michigan with hydraulic lift truck. Avoid trouble, be safe. FRANK H. CASS & COMPANY, 601 Van Dyke, Detroit, Michigan. Walnut 4-0853.

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Readers who have any questions regarding the application of air conditioning are invited to write to Mr. LaSalvia, the author of this series, who will be pleased to furnish a complete and detailed answer free of charge. This is another of the services provided by the NEWS.

Piping Refrigerant, Water, Steam (Cont.)

SATURATED STEAM

Saturated steam is steam that is in contact with the liquid water in the boiler from where it was generated, at a temperature which is the boiling point of water and the condensing point of steam. It may be either "dry" or "wet" steam, depending entirely on how it is generated.

The "dry" saturated steam is one in which there is no moisture.

The "wet" saturated steam is one which has moisture entrained or in suspension. The "wet" saturated steam at any pressure has a definite temperature. (See Table 9.)

BOILER HORSEPOWER

Boiler horsepower is the evaporation of 34.5 lbs. of water per hour from 212° F. into steam at 212° F. As 1 lb. of water produces 1 lb. of steam, the size of boiler can be found by the amount of steam required.

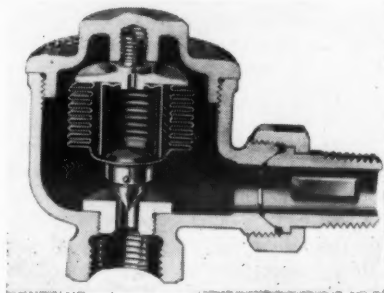


Fig. 16—To keep condensate out of steam coils a syphon steam trap such as the above is often used on low-pressure systems. Trap shown is made by Warren Webster & Co.

EXAMPLE

If the steam coils require 3,450 lbs. of steam per hour, then $3,450 \div 34.5 = 100$ theoretical boiler horsepower. The size of the boiler should be 25% larger to take care of losses, so that: $3,450 \times 1.25 = 4,312$ lbs. per hour, which should be the proper size of boiler to use.

Steam Float Trap

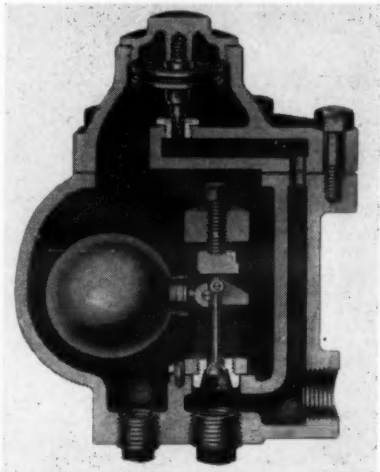


Fig. 17—This Webster drip trap removes condensate by means of a float; air by a thermostatic element.

Steam Bucket Trap

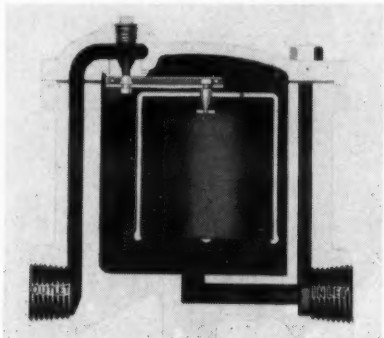


Fig. 18—Inverted bucket traps, such as this one made by Clark Mfg. Co., are employed on high pressure steam systems.



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The **WARREN COMPANY** INCORPORATED
905 MEMORIAL DRIVE, S. E. ATLANTA 1, GEORGIA

Table 9—Temperature Table for Dry Saturated Steam

Temp., °F	Abs. Press., lb. per sq. in.	Specific Volume			Enthalpy			Entropy			Temp., °F
		Sat. Liquid v _l	Evap. v _g	Sat. Vapor v _g	Sat. Liquid h _l	Evap. h _{fg}	Sat. Vapor h _g	Sat. Liquid s _l	Evap. s _{fg}	Sat. Vapor s _g	
32	0.08854	0.01602	3306	3306	0.00	1075.8	1075.8	0.0000	2.1877	2.1877	32
38	0.09955	0.01602	2947	2947	3.02	1074.1	1077.1	0.0061	2.1709	2.1770	38
48	0.12170	0.01602	2444	2444	8.05	1071.3	1079.3	0.0162	2.1435	2.1597	48
58	0.14752	0.01602	2036.4	2036.4	13.06	1068.4	1081.5	0.0262	2.1167	2.1429	58
68	0.17811	0.01603	1703.2	1703.2	18.07	1065.6	1083.7	0.0361	2.0903	2.1264	68
78	0.2163	0.01604	1206.6	1206.7	23.06	1062.9	1085.9	0.0455	2.0639	2.0948	78
88	0.2631	0.01606	867.5	867.9	28.04	1060.3	1082.3	0.0545	2.0377	2.0647	88
98	0.3195	0.01608	633.1	633.1	33.02	1057.8	1080.6	0.0632	2.0117	2.0360	98
100	0.3195	0.01610	468.0	468.0	37.99	1054.9	1079.9	0.0715	1.9859	2.0087	100
100	0.3195	0.01613	350.3	350.4	42.97	1052.4	1077.2	0.0795	1.9603	1.9826	100
110	1.2748	0.01617	265.3	265.4	47.94	1049.9	1074.9	0.0872	1.9351	1.9577	110
120	1.6924	0.01620	203.25	203.27	52.92	1047.4	1072.4	0.0947	1.9103	1.9330	120
130	2.2226	0.01625	157.32	157.34	57.90	1044.9	1069.9	0.1020	1.8859	1.9089	130
140	2.8886	0.01629	122.99	123.01	62.88	1042.4	1067.4	0.1091	1.8619	1.8844	140
150	3.718	0.01634	97.06	97.07	67.86	1039.9	1064.9	0.1160	1.8383	1.8608	150
160	4.741	0.01639	77.27	77.29	72.84	1037.4	1062.4	0.1227	1.8151	1.8376	160
170	5.992	0.01645	62.04	62.06	77.82	1034.9	1059.9	0.1292	1.7923	1.8148	170
180	7.510	0.01651	50.47	50.49	82.80	1032.4	1057.4	0.1356	1.7699	1.7924	180
190	9.339	0.01657	40.94	40.96	87.78	1029.9	1054.9	0.1419	1.7479	1.7704	190
200	11.526	0.01663	33.62	33.64	92.76	1027.4	1052.4	0.1481	1.7263	1.7488	200
210	14.123	0.01670	27.80	27.82	97.74	1024.9	1049.9	0.1542	1.7051	1.7276	210
220	16.696	0.01672	26.78	26.80	102.72	1022.4	1047.4	0.1603	1.6843	1.7068	220
230	17.186	0.01677	23.13	23.15	107.70	1019.9	1044.9	0.1663	1.6639	1.6864	230
240	20.780	0.01684	19.365	19.382	112.68	1017.4	1042.4	0.1723	1.6439	1.6664	240
250	24.969	0.01692	16.308	16.323	117.66	1014.9	1039.9	0.1782	1.6243	1.6468	250
260	29.825	0.01700	13.804	13.821	122.64	1012.4	1037.4	0.1841	1.6051	1.6276	260
270	35.429	0.01709	11.746	11.763	127.62	1009.9	1034.9	0.1899	1.5863	1.6081	270
280	41.858	0.01717	10.044	10.061	132.60	1007.4	1032.4	0.1957	1.5679	1.5894	280
290	49.203	0.01726	8.628	8.645	137.58	1004.9	1029.9	0.2015	1.5499	1.5714	290
300	57.556	0.01735	7.444	7.461	142.56	1002.4	1027.4	0.2072	1.5323	1.5535	300
310	67.013	0.01745	6.449	6.466	147.54	999.9	1024.9	0.2129	1.5151	1.5361	310
320	77.68	0.01755	5.609	5.626	152.52	997.4	1022.4	0.2185	1.4983	1.5191	320
330	89.66	0.01765	4.896	4.914	157.50	994.9	1019.9	0.2241	1.4819	1.5025	330
340	103.06	0.01776	4.289	4.307	162.48	992.4	1017.4	0.2296	1.4659	1.4865	340
350	118.01	0.01787	3.770	3.788	167.46	989.9	1014.9	0.2351	1.4503	1.4706	350
360	134.63	0.01799	3.324	3.342	172.44	987.4	1012.4	0.2405	1.4351	1.4553	360
370	153.04	0.01811	2.939	2.957	177.42	984.9	1009.9	0.2459	1.4203	1.4405	370
380	172.44	0.01823	2.626	2.643	182.40	982.4	1007.4	0.2512	1.4059	1.4261	380
390	193.77	0.01836	2.317	2.335	187.38	979.9	1004.9	0.2565	1.3919	1.4119	390
400	220.37	0.01850	2.0651	2.0836	192.36	977.4	1002.4	0.2618	1.3783	1.3981	400
410	247.31	0.01864	1.8447	1.8633	197.34	974.9	999.9	0.2671	1.3651	1.3842	410
420	276.75	0.01878	1.6512	1.6700	202.32	972.4	997.4	0.2723	1.3523	1.3716	420
430	308.83	0.01894	1.4811	1.5000	207.30	969.9	994.9	0.2775	1.3399	1.3590	430
440	343.72	0.01910	1.3308	1.3499	212.28	967.4	992.4	0.2827	1.3279	1.3468	440
450	381.59	0.01926	1.1979	1.2171	217.26	964.9	989.9	0.2879	1.3163	1.3350	450
460	422.6	0.0194	1.0799	1.0993	222.24	962.4	987.4	0.2931	1.3051	1.3236	460
470	466.9	0.0196	0.9748	0.9944	227.22	959.9	984.9	0.2982	1.2943	1.3125	470
480	514.7	0.0198	0.8811	0.9009	232.20	957.4	982.4	0.3033	1.2839	1.3017	480
490	566.72	0.0200	0.7972	0.8172	237.18	954.9	979.9	0.3084	1.2739	1.2913	490
500	621.4	0.0202	0.7221	0.7423	242.16	952.4	977.4	0.3135	1.2643	1.2812	500
510	680.8	0.0204	0.6545	0.6749	247.14	949.9	974.9	0.3186	1.2551	1.2715	510
520	744.4	0.0206	0.5935	0.6141	252.12	947.4	972.4	0.3237	1.2463	1.2621	520
530	812.4	0.0215	0.4434	0.4649	257.10	944.9	969.9	0.3287	1.2379	1.2532	530
540	884.5	0.0221	0.3647	0.3868	262.08	942.4	967.4	0.3337	1.2299	1.2447	540
550	961.8	0.0228	0.2989	0.3217	267.06	939.9	964.9	0.3387	1.2223	1.2365	550
560	1044.9	0.0236	0.2432	0.2665	272.04	937.4	962.4	0.3437	1.2151	1.2286	560
570	1134.0	0.0247	0.1955	0.2201	277.02	934.9	959.9	0.3487	1.2083	1.2211	570
580	1229.0	0.0260	0.1538	0.1798	282.00	932.4	957.4	0.3537	1.2019	1.2139	580
590	1330.0	0.0275	0.1165	0.1442	287.00	929.9	954.9	0.3587	1.1959	1.2071	590
600	1437.0	0.0293	0.0810	0.1115	292.00	927.4	952.4	0.3637	1.1899	1.2007	600
700	3093.7	0.0369	0.0392	0.0761	823.3	912.1	904.5	0.4087	1.1483	1.1389	700
708.4	3206.2	0.0503	0.0000	0.0503	902.7	0	902.7	1.0580	0	1.0580	708.4

Dealer-Distributor Cost Figures Needed--

(Concluded from Page 1, Column 3)

Blees, whose talk was lauded by W. G. Peirce, Jr., chairman of the appliance division, as "one of the most heartening we have ever heard," discussed frankly a subject apparently uppermost in the minds of the distributors.

"I am deeply concerned about discounts," he said. "As long as we were getting fast turnovers and we did not have any selling expense, small margins did not make much difference. Fast turnovers assured us of high profits."

"But now that the turnover of inventories has reached a normal rate and we must go back to doing more things to sell merchandise, the discounts that we have in this business, I am afraid, are going to prove to be inadequate."

"This situation cannot be cured overnight, but it requires the immediate attention of all of us. No discount can offset bad or inefficient management."

COST OF DOING BUSINESS DATA WILL AID CALCULATIONS

However, Blees pointed out, "in trying to find an answer to this problem, I have encountered a discouraging thing. It is practically impossible to get any real information from our distributors or dealers about the cost of doing business."

"We are not afraid to meet the issue, but we must have accurate information and that can only come from good accounting in both distributorships and dealerships."

"Now I want to urge you distributors to protect your dealers and not overcharge them on the merchandise because the factory may have short discounts. What you should do is to fight the battle of discounts with the factory."

"Now I know it is rather unusual for a sales manager to openly admit that he thinks discounts are wrong. We don't get anywhere by dodging the issue. The only way we will ever cure the ills of this business is to frankly discuss the things that are wrong and do something about them."

In addition to discounts, Blees' talk covered overproduction, price protection, management and accounting, and retail selling. His subject was "Working With Dealers for Profits."

NO OVERLOADING OF DEALERS

"To help the dealers make money, we need to stop overselling them, and help them keep control of inventories," he summed up. "See to it that they carry adequate but not excessive stocks."

"We must help dealers get good accounting and management into their operations. We must immediately study our discounts and review them in line with the present-day cost of doing business. We must get our wholesale men to become more retail minded. We must not pack territory with dealers."

"If we do these things, we will build confidence in the minds of our dealers and have a proper organization."

Cotes presented three charts showing the profit trends and general financial condition of selected distributors.

One chart compared the profit and loss statements of four distributors for 1947 and 1948. Cotes said these distributors had been in business for many years and handled "excellent lines" of merchandise.

The chart showed that the percentage of gross profit to sales dropped from 17.11% in 1947 to 15.85% in 1948. Percentage of expense to sales rose from 8.88% to 10.05% resulting in a drop of net profit after taxes from 4.94% to 3.41%.

"I do not consider 3.41% net after taxes as a satisfactory margin of profit for a well established, well managed distributing operation," he asserted.

"This drop in percentage . . . is an

indication to me of the squeeze that is taking place in general in the appliance business on profit margins. Personally I do not like this trend."

LARGER MARGINS ARE VITAL

"I feel that it is going to have to be reversed if we are going to have healthy distributors in this buyers' market."

"It seems to me that all manufacturers should remember that their distributors are their first line of offense saleswise."

"I would strongly recommend that distributors take their figures to their manufacturing sources, and discuss their operating figures quite frankly with the executive personnel of these manufacturing operations in an attempt to improve their over-all margins."

Siragusa claimed that the basic economic facts do not square with the pessimism so general in business sentiment today. After citing government statistics on employment, personal income, savings, and credit, which "add up to a very strong picture," he stated:

"In my opinion, the current pessimism is no more than one of the last phases of the readjustment from a war to a peace-time economy."

"For three years everybody wanted everything at once, and seemed willing to pay just about any price to get what they wanted. The abnormality of such a situation was universally admitted while it prevailed. No one expected it to last."

"Yet, now that a more normal balance between supply and demand finally has arrived, worry and anxiety are widespread. The principal reason for this seems to be the fact that a lot of people insist on comparing present business conditions with what admittedly was a highly abnormal period. If they would look back for their comparisons to the immediate pre-war years or perhaps to the early 1930s, they would think differently."

He said there should be "nothing either novel or frightening" about today's competitive market.

"The period that was novel and threatening to all our traditions was the war-born interlude of scarcity," he declared. "Except for those few years, however, things are no different now than they ever were in times of high employment, high personal incomes, and sound credit conditions."

"The market is present. The man who goes after it intelligently and vigorously with good merchandise, properly priced, will do well. The weak competitor will do poorly or fail as he always has."

But Siragusa said, "I have no illusions that any industry or company is going to enjoy the free and easy life that was common from 1945 to 1948. Once again it will be a case of the devil take the hindmost and I suspect there may be quite a few hindmosts."

VIDEO SET PRICE CUTTING ATTACKED BY DISTRIBUTOR

During the question period, Benjamin Gross, Gross Distributors, Inc., New York City, asked Siragusa what the manufacturers are planning to assure distributors and dealers of making a profit and seeing that margins are increased. He referred particularly to the television industry where he indicated, the dealers can't protect themselves from price cutting.

"What would dealers do if they had a longer discount," Siragusa retorted, "when some dealers are already cutting 15 to 20% off on a 28% margin? . . . It would be suicide to give dealers of that type more discount."

Gross, who claimed that the price cutting in the television field was the basic reason for his being at the convention, asserted repeatedly throughout the sessions that he considered that there was a basic flaw in the fundamental setup of the television industry that needed to be corrected or the situation would get worse.

During one panel discussion, he stated that television had definitely affected major appliance sales. The rapid turnover on television has caused dealers to neglect white goods; the price cutting in that field has carried over to major appliances; and the over-advertising of video has overshadowed major appliances, he asserted.

Harry Alter, Chicago distributor claimed, however, that television has not affected major appliances any more than it has other commodities

in the battle for the consumer's dollar.

In fact, Alter declared, television will become a booster of time and labor saving appliances when the housewife demands them so she will have more time off to watch television.

At the convention's general session following the appliance division's meeting, Edgar B. Ingraham, retiring Nema president, reviewed the appliance picture since the war and pointed out that many bad practices had grown up.

"In many large cities across the country, we are in one hell of a fix," he averred.

"The pressure of manufacturers on distributors to place orders in quantity on a semi-allocation system gave rise to the distributor's use of pressure selling of caught up merchandise."

"In more than one case a loading technique was used, stimulated by heralded price increases and followed shortly afterwards by price decreases far below the original prices."

"Loading was also stimulated by cruises, spiffs, split cars, contests, and other questionable practices, including key city advertisements by manufacturers featuring the phrase, 'liberal trade-in allowance,' with no plan for appraising or disposing of the traded-in merchandise."

"With all this pressure on them, what did the distributors' franchised dealers do? They transshipped to non-franchised customers, they cut prices, they offered elaborate trade-in allowances on an unsound basis, and they sold at very narrow margins—too narrow to permit them to build up their capital base necessary for conducting the enlarged business they were doing."

Gets Leadership Award



E. B. INGRAHAM

For his leadership in forming the NEMA appliance division, the retiring association president received the McGraw Award.

"Television is probably the worst example of all. Manufacturers from the outset allowed entirely too short a margin for distributors."

Ingraham predicted that unless a lot of these "bad practices" are curtailed, "we are headed for liquidations of stocks, and for failures galore from the dealer field, and plenty of trouble for wholesalers and manufacturers as well."

"Let's cut out the high pressure loading all up and down the line. As distributors, let's buy intelligently."

Let's regain the consumer's confidence. Let's get back to real selling effort—outside selling as well as selling in the stores," he urged.

Ingraham was awarded the James H. McGraw Award Wholesalers Medal for 1948 at the session. He received the award "for his inspiring leadership of his industry in forming and developing the appliance division of the National Electrical Wholesalers Association and his vigorous efforts to advance the economic position of the electrical wholesaler," according to the citation.

Peirce, commenting that too many dealers had entered the business and that many reportedly will fold up this year, stated:

"I wonder if all of us do not have to face the ugly fact that we in part brought on this situation. How many of us have welcomed new dealers with cash capital into our industry and then callously scratched them off our list when their money ran out—if we were smart enough to get out in time?"

He suggested that perhaps distributors should spend more time training the dealer on the financial aspects of his business. He said, "A tight distributor credit policy can make a dealer; a loose one can often end him up in a creditors' committee."

Peirce observed that too many of our top college men are being attracted to the very large corporations.

F. E. Stern, chairman of the legislative committee, said that his committee recommended the adoption of resolutions by the association to support bills for the repeal of excise taxes on electric, gas, and oil appliances and to prohibit the defacement of serial numbers.

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